

THE IRON AGE

A Review of the Hardware, Iron, Machinery and Metal Trades.

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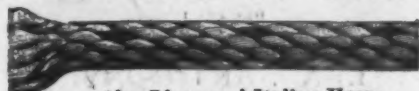
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THE IRON AGE

THURSDAY, OCTOBER 20, 1904.

THE IRON AND STEEL INSTITUTE.

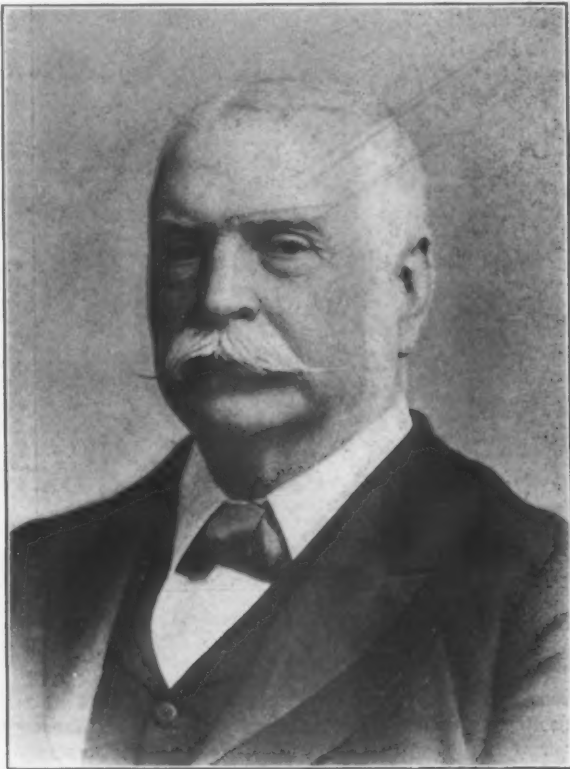
SECOND MEETING IN AMERICA.

In 1890 the American iron trade was honored by the selection of this country for a meeting of the Iron and Steel Institute. After an interval of 14 years this great association of the leading iron and steel manufacturers of the world will again hold a meeting on American soil. Although an essentially British institution, having its headquarters in London, and the majority of the members being residents of the United Kingdom, the Iron and Steel Institute is of a cosmopolitan character, not less than 19 countries being represented in its membership. While its meetings are usually held in Great Britain, it has quite frequently favored other countries with such

This great organization, which now has on its rolls about 1800 members, dates from 1869, when its first meeting was held in the Westminster Palace Hotel, London. The Duke of Devonshire was the first president, while among the principal promoters of the society were Sir Lowthian Bell, Edward Williams, David Dale, John Jones, Sir Henry Bessemer, Sir William Siemens, Lord Frederick Cavendish, Josiah Smith, Robert Heath and William Menelaus. The first secretary was John Jones. The Institute was founded at a most auspicious period. The iron industry of the world was at that time on the threshold of its modern development. The manufacture-



ANDREW CARNEGIE.



SIR JAMES KITSON.

meetings. It has met in France, Germany, Belgium, Sweden, Austria and Spain, as well as in America. This year it is particularly fitting that the Institute should hold a meeting in the United States, in view of the fact that the president is Andrew Carnegie. In the elevation of Mr. Carnegie to the highest office in its gift the Institute has departed from all precedent in its history, as he is its first president not a British subject.

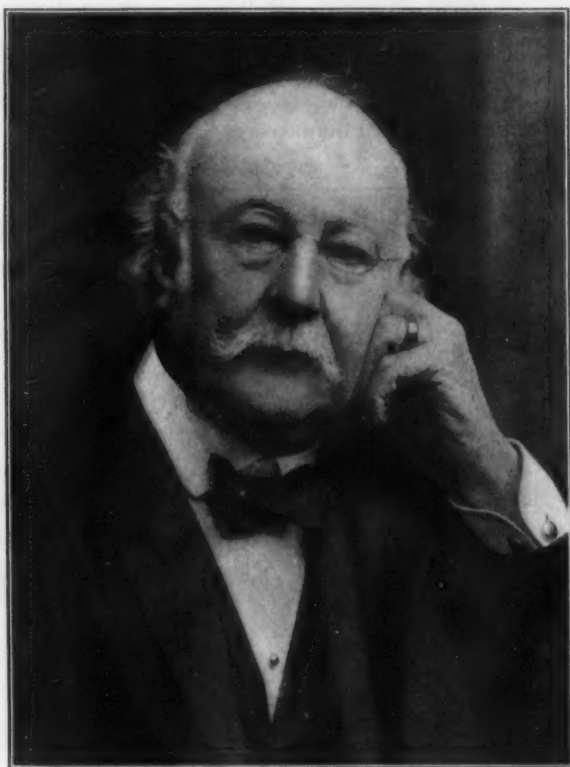
The British members of the Institute who visited this country in 1890 were the recipients of such extended hospitality, and were given such unrestricted opportunity to visit American iron and steel establishments, that when last year an invitation was extended to the Institute by the American members to hold its meeting on this side of the Atlantic in 1904 it was accepted enthusiastically. Preparations have been made which are of such a character that the meeting which will be held in this city next week will be a memorable occasion in the history of the Institute.

of pig iron was just beginning to be conducted upon scientific principles. The Bessemer process and the open hearth process had barely begun to work out their destiny of revolutionizing the iron trade. Manufactured iron had not then been supplanted by steel, even in the rail trade. Efforts were being made to improve the processes of manufacturing iron for the purpose of enabling machinery to take the place of hand puddling, as many members of the iron trade expected the great developments of the future to lie in the production of manufactured iron on a much larger scale, which could only be brought about by the cheapening of processes. Largely through the papers and discussions brought out by the Iron and Steel Institute the attention of the trade was directed to the greater opportunities presented in the development of the new steel-making processes. It has been well said that the foundation in 1869 of the Iron and Steel Institute supplied for the first time a recognized tribunal and parliament of metallurgical science, in which the merits and defects of

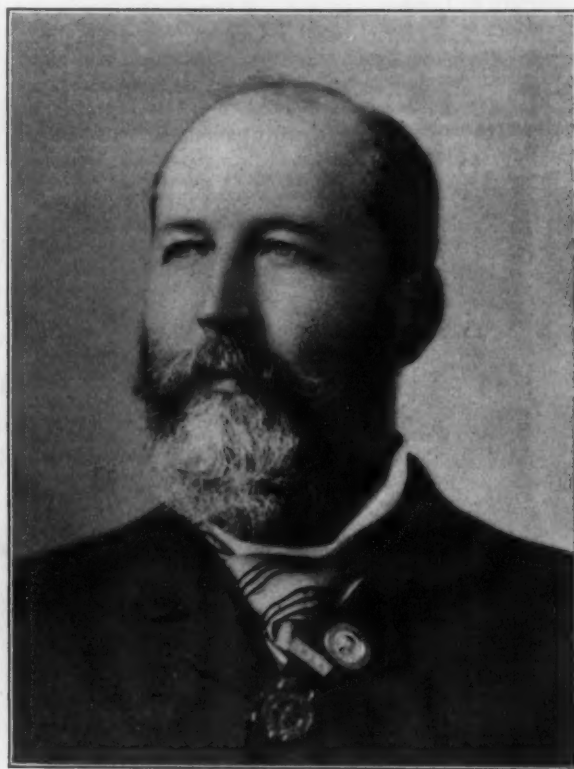
processes and appliances, of systems and principles, could be threshed out with a view to the ultimate evolution of truth.

At the approaching meeting of the Institute a notable incident will be the presentation of the Bessemer gold medal to Andrew Carnegie. In 1873 Henry Bessemer invested the sum of £400 in perpetual debentures of the London & Northwestern Railway Company to procure annually a medal to be awarded at each of the annual meetings of the Institute to the "inventor or introducer of any important or remarkable invention, either in the mechanical or chemical processes employed in the manufacture of iron or steel; for a paper read before the Institute and having special merit and importance in connection with the iron and steel manufacture; for a contribution to the *Journal* of the Institute, being an original investigation bearing on the iron and steel manufacture and capable of being productive of valuable practical results," and further provision is made that the council

and became an operator, entering the service of the Pennsylvania Railroad Company in that capacity. Thomas A. Scott, who was then superintendent of the Western division, took a fancy to the young man, made him his secretary, and suggested profitable opportunities for the investment of his savings. Ere long, when Scott was advanced, Andrew Carnegie was made superintendent of the division. In this position he was afforded an opportunity to take an interest in the Woodruff sleeping car, the progenitor of the Pullman service, and this gave him a good start toward fortune. During the Civil War he was placed in charge of the military railroads and telegraph lines. Investments in oil properties were made which proved very profitable and indeed enabled him to undertake important enterprises. Seeing the necessity for something better than wooden bridges, he formed a company to build iron bridges, and the Keystone Bridge Works thus came into existence. This was Mr. Carnegie's first entrance into the iron trade, in which he was destined to become such a prominent figure. His company built the first great bridge over the Ohio river. The Union Iron Mills, for the production of bridge shapes, was a natural outgrowth of the bridge business. Rapidly in the following years came the Lucy Furnace Company, whose success may be said



E. WINDSOR RICHARDS.



EDWARD P. MARTIN.

of the Institute may award the medal in any case not coming strictly under the foregoing definitions should it consider that the iron or steel trade has been or may be substantially benefited by the person to whom such an award has been made. Since the medal was instituted the American awards have been as follows: 1879, Peter Cooper; 1882, Alexander Lyman Holley; 1890, Abram S. Hewitt; 1893, John Fritz; 1895, Henry Marion Howe.

We present herewith the portraits of a number of the leading members of the Institute who will be present at the approaching meeting, which will serve as an introduction to their American colleagues.

ANDREW CARNEGIE.

In 1848 a young Scotsman, aged 11, whose family had just emigrated to America, secured employment as bobbin boy in a cotton factory in Allegheny, Pa. This was the beginning of the career of Andrew Carnegie, which has been one of the most remarkable in the world's industrial history. The boy's wages were \$1.20 a week. In less than a year he attracted attention by his brightness and was taken from the factory by one who had noticed him, and in the new works he learned how to run the engine and was placed in charge of it. He next became a messenger boy in the service of the Ohio Telegraph Company. When he was but 14 years old his father died and upon the boy fell the entire support of his mother and younger brother. He mastered telegraphy

to have revolutionized the blast furnace industry; the Edgar Thomson Steel Company, operating the greatest Bessemer steel works and the greatest steel rail plant in the world, and the Homestead Steel Works, the greatest plant for the manufacture of structural shapes and plates, including armor plate. All these enterprises involved the co-operation of many other able men, but in every one of them Mr. Carnegie was the dominating spirit through his talent for organizing. By 1888 his was the controlling mind in no less than seven huge plants in and near Pittsburgh, which were then amalgamated into the Carnegie Steel Company. In 1901 his vast interests were taken over by the United States Steel Corporation and he retired from active participation in the iron trade, having done what no other man of great accumulations had been able to accomplish—converted his possessions completely into negotiable securities. Mr. Carnegie's life since then has been largely devoted to practical philanthropy. He has given away princely sums in the founding of libraries and the endowment of educational institutions. No other one man has done so much toward the improvement of processes in the iron trade. As rapidly as inventors could show him how to cheapen cost or increase production he was ready to put their ideas into practical effect. When he relinquished control of the Carnegie Steel Company no other works in the world could approach that company's plants in the completeness of their equipment or the perfect control of every class of needed material. His elevation to the presidency of the Iron and Steel Institute was a merited recognition of the distinction which he had won as an iron and steel manufacturer.

SIR JAMES KITSON.

As an ordinary member and as a member of the council Sir James Kitson has been for many years active in the conduct of the business of the Iron and Steel Institute, and has been prominent at most of its annual meetings. He was president of the Institute in the years 1889-1890. He also presided at the meetings of the Institute in Paris in 1899 and at the great International meetings in New York and

James Kitson's company continues the business, which is now one of the foremost of its class in Great Britain.

In addition to his active business labors Sir James Kitson has been prominent in public life. Since 1892 he has had a seat in the House of Commons. He was Lord Mayor of Leeds in the jubilee year of 1897, and has been active in philanthropic work in his native city. He is also a director of the Northeastern Railway and of the London City and



WILLIAM WHITWELL.



BENNETT H. BROUGH.

Pittsburgh on the occasion of the last visit of the Institute to the United States.

Sir James Kitson is the second son of the late James Kitson, founder of the locomotive building works now carried on at Airedale Foundry, Leeds, as the firm of Kitson & Co., Limited. His industrial work was begun and continued at the Monk Bridge Iron & Steel Works. Starting there in 1854, he has since that date been in a great measure the manager of the works. The leading business has been the

Midland Bank, and has interested himself in industrial enterprise. He is an enthusiastic educationalist, and always refuses to take a pessimistic view of the present position and future prospects of the British iron and steel trade. Holding these opinions, he is still actively developing his business by the adoption of new methods and processes, for which he accords to the light obtained through the Iron and Steel Institute an unvarying tribute of warmest acknowledgment. It should not be forgotten that in 1903 he was awarded the



SIR LLOYD WISE.



SIR DAVID STEWART.

manufacture of the best Yorkshire iron and crucible and open hearth steel as applied to the manufacture of the best qualities for locomotives and general railway purposes. In association with his brother, F. W. Kitson, the Monk Bridge Works were reconstructed and extended. The brothers are patentees of a method of making solid weldless iron tires, and these were produced in large quantities for several years until superseded by steel tires. In 1862 the Monk Bridge Iron Works began the manufacture of steel tires, and Sir

Bessemer gold medal of the Institute for his distinguished services to the iron and steel trade.

E. WINDSOR RICHARDS.

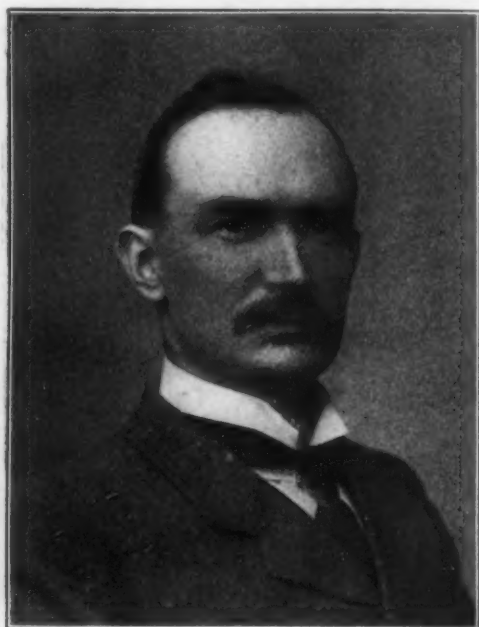
Few men have had a wider experience in the manufacture of iron and steel than E. Windsor Richards, past president of the Iron and Steel Institute and member of the Institution of Civil Engineers. He is almost equally well known in the United States as in Europe, and has been largely con-

sulted in reference to the construction and administration of important installations. He was born in South Wales, where he received his training in mechanical and metallurgical engineering. After some years of service in subordinate capacities he became general manager of the works, collieries and mines of the Ebbw Vale Iron Company, and under his management the operations of the company were very largely developed. He put down the large Bessemer plant adopted by the Ebbw Vale Company for the manufacture of steel rails, and soon became recognized as one of the most

gree of perfection by means of tests and experiments. The Bessemer gold medal of the Iron and Steel Institute has been awarded to him for these services. Some years ago he accepted the general management of the works of the Lowmoor Iron Company. He has grown into a recognized authority on metallurgy in all departments.

EDWARD PRITCHARD MARTIN.

Edward Pritchard Martin is a past president of the Iron and Steel Institute and of the South Wales Institute



BENJAMIN TALBOT.

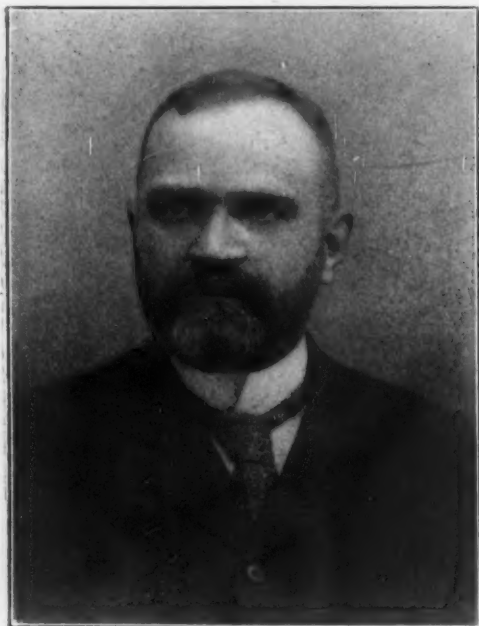
competent and experienced blast furnace and Bessemer engineers of the day.

Mr. Richards succeeded the late Edward Williams in the responsible position of general manager of the great corporation Bolckow, Vaughan & Co. At that time iron making firms in England were first turning their thoughts to steel. The whole product of Bessemer steel at that time did not exceed 620,000 tons a year. Steel had hardly been applied



JULES MAGERY.

of Engineers, vice-president of the Institute of Mechanical Engineers, and member of the Institute of Civil Engineers. He was born at Dowlais in 1844, commencing work in 1860 with the Dowlais Iron Company, where he served his time. Nine years later he became deputy general manager of the Dowlais Iron Company, and in 1870 was appointed general manager of the works of the Governor and Company of Copper Miners in England, at Cwmavon.



AXEL SAHLIN.

to the purposes of shipbuilding or tin plate manufacture at all, and its use for a hundred minor purposes was still in the clouds. Nevertheless, Bolckow, Vaughan & Co. had determined to throw in their lot with steel, and it fell to Mr. Richards to construct the works which were provided for the purpose. It would be impossible in this short space to speak of all the gigantic work done by him during the thirteen years of his connection with this concern, and most especially in bringing the basic process to a very high de-



WILLIAM F. BEARDSHAW.

In 1874 he became general manager of the Blaenavon Company's works, where he identified himself with the inventions of Thomas and Gilchrist in dephosphorizing steel, which process was worked out at the Blaenavon Company's works, and for his services in connection with the process he was awarded the Bessemer gold medal. In 1882 he was appointed general manager of the Dowlais Iron Company, and during his management the new iron and steel works at Cardiff were erected. On the amalgamation of the Dowlais

Iron Company with the Patent Nut & Bolt Company he was appointed deputy chairman and managing director of Guest, Keen & Co. Though he has since 1902 retired from this position, he still retains a seat on the board of Guest, Keen & Nettlefords, Limited.

He is director of the Orconera Iron Ore Company, Limited, the Rhymney Railway Company, and the South Wales Electrical Power Distribution Company, Limited. Besides his busi-

ness activities he is magistrate and ex-sheriff for his county. After the visit of the Iron and Steel Institute to Norway and Sweden the King of Sweden created him commander of the second class of the Royal Order of the Wasa.

TOM WESTGARTIL.

WILLIAM WHITWELL.

William Whitwell, past president of the Iron and Steel Institute, has identified himself with many important public institutions, as well as with the administrative life of his own county, Yorkshire, where he is a magistrate, and also

William Whitwell & Co.'s departments have been thoroughly remodeled with all economic appliances, including electric light and power. He is greatly interested in educational matters and takes a prominent part in those of his district.

BENNETT H. BROUGH.

Bennett H. Brough, secretary of the Iron and Steel Institute, was educated at the Royal School of Mines, London,

GEORGE CAWLEY.

and at the Royal Prussian Academy of Mining at Clausthal in the Hartz Mountains. He was formerly instructor in mine surveying at the Royal School of Mines, and is the author of the standard English treatise on mine surveying (first edition, 1888; tenth edition, 1903). He was appointed coeditor of the *Journal of the Iron and Steel Institute* in 1884 and secretary in 1903.

He is a knight of the Swedish Order of Wasa, associate of the Royal School of Mines, fellow of the Geological Society and member of council of the Institution of Mining

E. H. SANITER.

president of the Board of Conciliation and Arbitration of the North of England Iron and Steel Trades.

He was born at Kendal, in Westmoreland, in 1835, and was educated privately. His experience as an iron manufacturer extends over a period of 45 years. He went to Stockton-on-Tees in 1859 to erect blast furnaces with his brother, the late Thomas Whitwell, and their original venture was followed by extensive iron works. These blast furnaces in time gave place to new ones of the most modern American construction and practice. Recently both of

SEPTIMUS YOUNG.

Engineers. He has also served on the councils of the Institute of Chemistry and of the Chemical Society. He served as juror at the Inventions Exhibition, London, 1885, and at the Paris Exhibition, 1900. He received a medal for the collection illustrating the mineral resources of Great Britain formed by him at the request of the royal commission for the Chicago Exposition of 1893.

He is the author of numerous papers on mining and metallurgy, published in the various scientific and technical journals connected with arts and manufactures, and his

lectures on mine surveying (1892), on metalliferous deposits (1900) and on nonmetallic minerals (1903), delivered before the Society of Arts, have been published in book form.

SIR LLOYD WISE.

Sir Lloyd Wise, who for the past thirty years has labored incessantly in promoting reform of patent law and practice, was born at Manchester in 1845. He received his early education in London and Ghent; this was followed by profes-

neers. He is associate of the Institution of Civil Engineers and of the Institute of Naval Architects. He was knighted in 1904, and in connection with his special work in patent law reform he is a member of the Patent Law Association of Washington, D. C., and foreign member of the Australasian Institute of Patent Agents.

SIR DAVID STEWART.

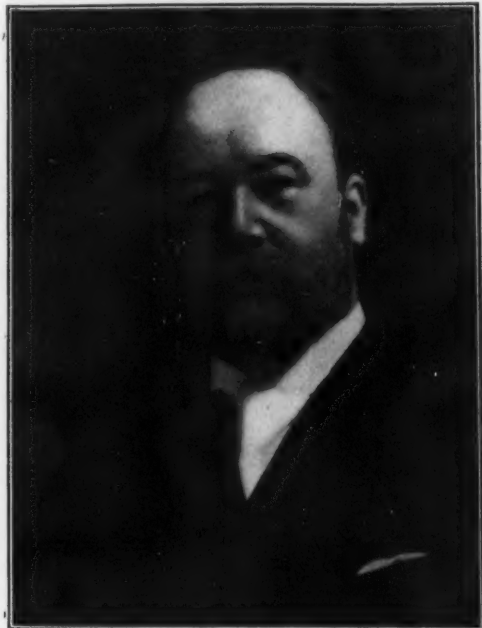
Sir David Stewart of Banchory was born in 1835, and is



DR. A. WEISKOPF.

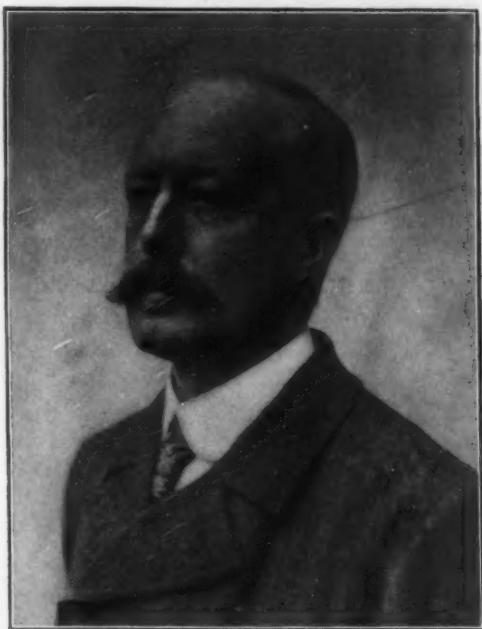
sional training in the office of his father, the late Francis Wise, and he also gained useful experience in the Siebe works. He is a founder and original member of the council of the Institute of Patent Agents, and has taken an active part in securing important patent law reforms in the United Kingdom.

A leader writer for over thirty years on the staff of *Engineering*, he also compiled the *Illustrated Patent Record* and the abstracts of electric lighting patents in Dredge's



SYDNEY JESSOP ROBINSON.

a graduate of King's College, Aberdeen. After graduating he joined his father's business as a member of the firm of S. R. Stewart & Co., the largest comb-making concern in the world, which some years ago was turned into a limited liability company, with Sir David as chairman. As chairman of the Great Northern of Scotland Railway he is an important figure in the rail world, and when in America will no doubt take a deep interest in the relative qualities of American steel rails.



DAVID FLATHER.

"Electric Illumination." In 1891, being then president of the Institute of Patent Agents, he was, by royal charter, appointed first president of the Chartered Institute, and is now senior past president. He has done much useful work on the Essex County Council and the Southend local governing body.

Sir Lloyd Wise is a fellow of the Royal Geographical Society, a member of the Royal Institution, of the Iron and Steel Institute, and of the Institute of Mechanical Engi-



G. WATSON GRAY.

He has been a prominent figure in the public life of his own district of Aberdeen, having been successively president of the Aberdeen Chamber of Commerce, dean of the Guild and lord provost of the city. During his occupation of the civic chair he performed a large amount of important work, both in connection with the town council's affairs and those relating to the harbor. He has been a generous donor to the extension scheme for the Marischal College at Aberdeen, and in 1885 was chosen by the Lord Rector as his assessor

at the University Court. His services on behalf of the university were recognized by the authorities, who, in 1895, conferred on him the degree of LL.D.

He is the Unionist Parliamentary candidate for South Aberdeen, is deputy lieutenant of Aberdeenshire and Kincardineshire, a liveryman of the City of London and a director of the Northern Assurance Company. He was knighted in 1896.

BENJAMIN TALBOT.

Benjamin Talbot of Leeds is well known as the originator of the Talbot process for the manufacture of basic open hearth steel. He is a Shropshire man, born in 1864, and his first experience was gained as a learner in the Ebbw Vale Steel Works. From there he passed to the position of assistant to the Dephosphorizing Company, which controlled the Thomas and Gilchrist patents in England on the basic process.

In 1890 he came to the United States to start the manufacture of basic open hearth steel in the South, becoming superintendent of the Southern Iron Company's works at Chattanooga, Tennessee. In 1892 he accepted the position of superintendent of the steel department of the A. & P. Roberts Company of Pencoyd, Pa. He introduced the basic open hearth process there, and in 1898 brought out the con-

tinuous open hearth process (otherwise the Talbot process). This process was successfully installed at Pencoyd, Pa., and afterward taken up by the Jones & Laughlin Steel Company, Pittsburgh, which is now operating the largest steel furnace in the world on this process, and is building other furnaces like it, as it has proved to be so economical. He resigned his position as manager at Pencoyd in 1900 in order to devote more time to the introduction of the continuous process in Europe and the United States.

BENJAMIN TALBOT.

While thus engaged he was asked to join a commission to this country to investigate the iron and steel business as carried on here. In this connection he reported on the manufacture of pig iron as seen here in the year 1901, and the report appears in the volume issued by the commission under the title "American Industrial Conditions and Competition." Eventually, in 1902, he and Julian Kennedy of Pittsburgh established themselves in London as consulting engineers for iron and steel works plant, under the name of Julian Kennedy, Sahlin & Co., Limited. The firm is engaged in designing and carrying out considerable engineering enterprises in the countries of Europe and has also for the past two years represented the Morgan Construction Company, Worcester,



THOMAS TURNER.



DAVID E. ROBERTS.

tinuous open hearth process (otherwise the Talbot process). This process was successfully installed at Pencoyd, Pa., and afterward taken up by the Jones & Laughlin Steel Company, Pittsburgh, which is now operating the largest steel furnace in the world on this process, and is building other furnaces like it, as it has proved to be so economical. He resigned his position as manager at Pencoyd in 1900 in order to devote more time to the introduction of the continuous process in Europe and the United States.

JULES MAGERY.

Jules Magery is the president of the leading technical society in Belgium in the coal and iron branches, the Association des Ingenieurs Sortis de l'Ecole de Liege. M. Magery, who has now retired from active business, began his professional career in 1863 as mining engineer of the Société de Vezin-Aulnoye, being successively engineer of the Oolithic iron mines at Vezin, Belgium; of the Aulnoye blast furnaces in France, the Maxeville mines near Nancy, France, and the Tilleul rolling mills, near Maubeuge, France. In 1874 he became technical manager of the famous Rothe Erde Works, near Aix-la-Chapelle, Germany; of the Aachener Huettten Aktien Verein, holding the post until 1900. He retains his connection with the company as one of its directors, but is now living at Namur, Belgium. He is accompanied by his son, Maurice Magery, who is one of the engineers of the Rothe Erde Works.

AXEL SAHLIN.

So much of Axel Sahlin's life has been spent in the United States that he is probably very well known to most of our readers. In 1877 he graduated from the Stockholm University, and after practicing for a couple of years in Swedish railway shops he took up work in England and on the European Continent as inspector of railway material. Arriving in America he entered the employ of the Cambria Iron Company in the mechanical department, leaving that to become engineer to the Pottstown Iron Company, Potts-

Mass., with the result that three installations of Morgan continuous mills are now being erected in Europe.

WILLIAM F. BEARDSHAW.

William F. Beardshaw is one of the prominent names of Sheffield, having strong business connections both with the light and heavy industries of the district. He is managing director of J. Beardshaw & Sons, Limited, Baltic Steel Works, Sheffield, from whose works come special steels and irons. The firm has a well established reputation, having been founded in the early days of the last century. There are a number of Sheffield houses which are now in their second, third and even fourth centuries, but even in England to have been expanding systematically for nearly a century is an uncommonly good certificate of merit.

Mr. Beardshaw is specially interested in the heat treatment of steel, in the manufacture of high speed tool steel and also tools made from high speed tool steel. He has been a member of the Iron and Steel Institute since 1889 and is no stranger to the United States. He attended the meeting in 1890.

Local honors have fallen thick upon him. He was president of the Sheffield Chamber of Commerce and Manufactures in 1901, 1902 and 1903. He also attended the congress of Chambers of Commerce of the British Empire held in Montreal last year. Like his other colleagues, he is a magistrate for the city of Sheffield.

TOM WESTGARTH.

Tom Westgarth is joint managing director of Richardsons, Westgarth & Co., Limited, one of the largest engine building firms in the United Kingdom, and has control of the Middlesbrough branch of its works. The business of the firm is largely marine engine building, but it makes a specialty of steam turbines, gas engines, blowing engines and steel works plant. The firm is the pioneer in England of large size gas engines for blast furnace gas and it is by far

the largest maker in the United Kingdom of this class of machinery. Mr. Westgarth is now designing and building a completely new rolling mill plant of large size for the Cargo Fleet Iron Company, Limited, Middlesbrough.

Before the present combination of the Richardson and Westgarth works was brought about Mr. Westgarth was managing director of the engineering firm of Sir Christopher Furness, Westgarth & Co., Limited, and prior to that was the managing partner of Westgarth, English & Co., both firms being engaged in marine engine building at Middlesbrough. He served his apprenticeship with the Earles Shipbuilding Company, Hull, and stayed with it for fourteen years, when he left to commence business for himself. He has made several trips to America and has examined most of the principal iron works in the States. He is a member of most of the leading scientific societies in England, before which he has read many papers. He is vice-president of the North-east Coast Engineers and Shipbuilders, and a past president of the Cleveland Institute of Engineers.

GEORGE CAWLEY.

George Cawley of London is consulting and inspecting engineer to the Imperial Railways of Japan in respect of all work constructed in Europe for these railways, and acts in a similar capacity for all the leading Japanese railways managed by private companies. His connection with Japan dates back to 1873, when he was appointed to form one of the original staff to organize the Imperial College of Engineering in Tokio. The influence which this institution has exercised on the progress of Japan is referred to in a recent article written by the Marquis Ito, the "grand old man" of Japan, for a lately published book entitled "Japan by the Japan-



LEICESTER P. SIDNEY.

ese." Regarding it he remarks: "From this college have come the majority of engineers who are now working the resources and industries of Japan. I consider the establishment of this college as one of the most important factors in the development of the Japan of to-day."

Mr. Cawley has had several years' connection with technical journalism, and was the first editor-in-chief of the British technical journal *Industries*. He severed his connection with this journal when it passed into the hands of a new proprietary and assumed the name of *Industries and Iron*.

E. H. SANITER.

E. H. Saniter, the inventor of the new process for the elimination of sulphur, is a young man (*i. e.*, for England), not much over thirty years of age, but during his short metallurgical career he has by steady perseverance and application achieved much success.

He is a native of Middlesbrough, was educated at the Coatham Grammar School and studied analytical chemistry in the metallurgical laboratory of J. E. Stead for three years. He was afterward assistant chemist in the Northeastern Steel Works, Middlesbrough, and then went to the works of the Wigan Coal & Iron Company, where he has developed his new process. At this time he read many papers, embodying the results of his researches and experiments, before the Iron and Steel Institute and the Society of Chemical Industry.

Early in 1898 he went to Port Clarence, where, under

Bell Bros. and Dorman Long & Co., experiments were started to demonstrate the suitability of common Cleveland iron for the manufacture of high class basic open hearth steel, with the result that a metal mixer of 200 tons capacity, a 45 to 50 ton basic Siemens furnace and a rolling mill were erected. The success of the experiments at Port Clarence was obtained by the combination of the basic open hearth process with the Saniter desulphurizing process, continued with the use of molten metal from a metal mixer. He has lately resigned his position at Port Clarence to become steel expert with Steel, Peech & Tozer of Sheffield, makers of tires, springs, axles, forgings, &c.

SEPTIMUS YOUNG.

Septimus Young, of the firm of Head, Wrightson & Young, Limited, London, has had a long experience and connection with the iron and steel industries of the United Kingdom. He was born at Newcastle-on-Tyne, educated and trained in the engineering works of that and the Manchester district, and was, for some years, on the staff of the consulting engineer for the equipment of the Indian Government and other railways in India.

In 1876 he joined Head, Wrightson & Co., Stockton-on-Tees, having one of the largest bridge building works and foundries in England, and has since been associated with that firm in building some of the largest bridges, viaducts and other steel structures in Great Britain, and in the supply of similar material for India, the Colonies and abroad. This firm, in conjunction with the firm of Sir William Arrol & Co., Limited, is now engaged in building the bridge across the Nile at Cairo, and is also associated with Charles T. Yerkes and partners in the supply of by far the largest quantity of cast iron tunnel and shaft linings for the underground electric railways now in course of construction in London.

He is a member of the Iron and Steel Institute, and associate of the Institute of Civil Engineers.

DR. A. WEISKOPF.

Dr. Ing. Alois Weiskopf, to give him his full title, has made a special and life-long study of the mining, concentrating, roasting and briquetting of iron ores. Born in Austria and educated at the technical high school (Polytechnikum) of Brünn, Moravia, he has since 1893 been actively engaged in researches connected with iron ores.

He began work as chemist to the iron and steel works at Witkowitz, passing from there in 1897 to take over the management of the iron ore mine in Kotterbach, Hungary. Since the year 1900 he has occupied the post of director of the Hannover-Braunschweigische Bergwerksgesellschaft (Hanover-Brunswick Mining Company), at Hanover, Germany. In 1901 he received the degree of "doctor rerum technicarum" (Dr. Ing.), the new title given to German and Austrian engineers.

The results of his experiments and researches have been published in various German and Austrian technical and other journals, and in the *Journal of the Iron and Steel Institute*. They relate mainly to the briquetting of iron ores, but he has also written upon the future prospects of gold mining in South Africa, the supply and output of quicksilver and other mining and metallurgical subjects.

SYDNEY JESSOP ROBINSON.

Like most officials of successful corporations, Sydney Jessop Robinson, managing director of Wm. Jessop & Sons, Limited, Sheffield, England, with which company he has been associated throughout his entire commercial career, began at the bottom of the ladder and worked his way up. When a young man he entered the employ of the company as office boy, and by hard work and close attention to details learned the business practically, advancing through the chemical department and various other departments of the works to his present position. He is a member of the Jessop family, being a grand nephew of Thomas Jessop and a cousin of William Jessop, president of the company. Aside from the steel business Mr. Robinson holds several offices and is affiliated with many companies. He is a city magistrate and a member of the Chamber of Commerce in Sheffield, a director of the Lancashire & Derbyshire Railway, and a member of the Cutlers Company of Hallamshire, which district embraces Sheffield. He was formerly captain of volunteers.

In the Cutlers Company Mr. Robinson is in line for the position of master cutler in a short time. This company, or guild, consisting of 32 members, is over 280 years old, and is the only association of its kind outside of London. It is licensed by the Government and endowed with special privileges and authority, including the right to grant trademarks.

In this country, to which he has made frequent visits, Mr. Robinson is thoroughly familiar with the needs and requirements of business, as he is vice-president of the Jessop Steel Company, Washington, Pa., a subsidiary company of Wm. Jessop & Sons, Limited. This company, of which William Jessop is also president, produces crucible steel sheets.

DAVID FLATHER.

David Flather is the son of W. T. Flather, founder of the Standard Steel Works, Sheffield, a firm which dates back to 1817. He was educated at the Sheffield Collegiate School and afterward studied chemistry under the late A. H. Allen, borough analyst, as well as at Firth College. In 1881 he was employed in the crucible steel department of the firm of John Brown & Co., Limited, of the Atlas Works, Sheffield. After two years spent here he entered the blast furnace laboratory under Thomas Blair, where he was for several years engaged in metallurgical work. In 1889 he joined his father's business, and is now a director of the Standard Steel Works.

He was elected a member of the Iron and Steel Institute in 1899, and is also an associate member of the Automobile and Cycle Engineers' Institute. To this latter society he has contributed papers on the subjects of steel for cycle work and on case hardening.

G. WATSON GRAY.

G. Watson Gray of Liverpool, England, although not a steel manufacturer, has, since he commenced his business career, been closely connected with the iron and steel industries by devoting his energies to the chemical analysis of the raw materials and the finished products. He is a native of Newcastle-on-Tyne, and received his early training in the chemical laboratory of John Pattinson, Newcastle. In 1892 he commenced business on his own account as analytical and consulting chemist, consulting engineer and assayer.

His special study has been that of ferro alloys and electric furnace products. As far back as 1888 he called attention to ferrotungsten, showing that in the composition of wolfram (tungsten ore) the analyses published at that time recorded the presence of niobium and tantalum, in many cases nothing more than oxide of tin, the tin becoming reduced and passing into the tungsten pig iron, hence the necessity of the steel maker insisting on the absence of tin from the ferro alloys he purchased. In January, 1904, an unusual explosion of ferrosilicon, with alloy imported from Trieste, attracted his attention and he immediately set about to discover the cause. He read two papers on the subject, one before the Faraday Society, the other at the May meeting of the Iron and Steel Institute. He is a member of many scientific societies, and is greatly interested in technical education, acting on the Technical Education Committee of the district in which he lives.

THOMAS TURNER.

Thomas Turner is a Tyneside man and served his apprenticeship as an engineer on the Tyne. For 25 years since his apprenticeship he has been acting in the capacity of works manager to two or three large iron and steel, coal and engineering companies, principally in South Yorkshire and Staffordshire. He brings, therefore, to his present work as managing director of Andrew Barclay, Sons & Co., Limited, of Kilmarnock, the results of a wide and intimate experience in the handling as well as the effective design and manufacture of their special products, such as locomotives and general iron, steel and mining plant.

Mr. Turner's engineering training was largely obtained at the Elswick Institute, and he was a Whitworth scholar. He studied chemistry and metallurgy under Professor Arnold, and he put down and started for the owners the first open-hearth basic steel plant set to work in South Wales. He is a member of the council of the Federated Mining Institute of Great Britain and of the West of Scotland Iron and Steel Institute. He is also a member of the Institution of Mechanical Engineers and of the Institution of Engineers and Shipbuilders of Scotland.

DAVID E. ROBERTS.

David E. Roberts was born at Merthyr Tydfil, Wales, the historic center of the iron trade, where his father was for many years manager of the old Plymouth Iron Works. He is 36 years old, and was educated privately and at Christ's College, Oxford. About twenty years ago he entered the engineering department of the Rhymney Iron Works and during the seven years he spent there he received a good all-round training. He was then appointed assistant engineer to a department of the great Dowlais Works, and remained there thirteen years. While there he was advanced from one position to another, finally becoming the chief engineer to the works. He has traveled extensively, studying modern practice on both continents, and has recently established himself as consulting engineer at Cardiff. He is a member of the Institution of Civil Engineers, a member of the Institution of Mechanical Engineers, of the Institution of Electrical Engineers and of the Iron and Steel Institute.

LEICESTER P. SIDNEY.

Leicester P. Sidney, the assistant secretary of the Iron and Steel Institute, was born in 1871, and educated partly at the Ecole Communale of Boulogne-sur-Mer and partly at Brighton. On leaving college he entered the laboratory of the South Staffordshire Steel Ingot Company, at Bilston, and subsequently became chief chemist at the works of the

Shelton Iron, Steel & Coal Company, Stoke on Trent, where he was associated for part of the time with the management of the smelting department. While in Staffordshire he took a prominent part in the social, scientific and literary life of the district. In 1896 he went to London and joined the staff of the *Iron and Coal Trades Review*, and left this position to become reader and technical editor to the publishing firm of Charles Griffin & Co. of London. He is the author of numerous papers contributed to both London and provincial papers. He was appointed assistant to Secretary Bennett H. Brough in May, 1904.

The Duty on Wooden Patterns for Iron Molding.

Representatives of R. Hoe & Co. and other machinery manufacturers appeared October 14 before the Board of United States General Appraisers to testify in a protest proceeding by R. Hoe & Co. against the classification for duty at 35 per cent., as manufactures of wood, of wooden iron molders' patterns which the firm has been having made at its English factory for the last year. The high classification is said to be due to the activity of the Pattern Makers' Union, the walking delegate of which, James McNabb, was a witness at the hearing in support of the Government's contention.

The facts as developed at the hearing are that until a year ago R. Hoe & Co. employed about 40 pattern makers at their Grand street factory in New York. About that time labor troubles developed here and the firm began to send blue prints of its patterns to its English factory, and to have the patterns made there from the blue prints and imported. At first they were admitted free of duty under the clause permitting free entry to "models of inventions and patterns for machinery." The union, finding that the force of pattern makers in New York had been reduced from 40 to 10, set about finding out the reason, and as soon as discovered complained to the Treasury Department, with the result that an order was issued to classify the patterns as manufactures of wood at 35 per cent. duty.

At the hearing the importers were represented by Albert Comstock, who argued that the language of the law admitting "patterns for machinery" free of duty was so clear that it was capable of only one construction. B. A. Levett, for the Government, argued that, taken in conjunction with the words "models of invention," it was evident that the intention of Congress was only to permit the free entry of patterns embodying some new idea and that the commercial importation of iron molders' patterns was never contemplated. Mr. McNabb and several other labor men were put on as witnesses to prove that the word "patterns" was used in the trade in two different senses when relating to the commercial pattern and the model for a new machine. The board reserved its decision.

The Duty on Thermit.

The Board of United States General Appraisers is considering the protest by the Goldschmidt Chemical Company, Essen, Germany, and New York, against the rate of duty imposed by the local customs officers on Thermit, which is a material, the invention of Dr. Hans Goldschmidt, widely used in the welding of steel and iron. Its largest use probably is in welding electric railway rails, but it has also been used successfully in the repairing of steamship shafts and similar work.

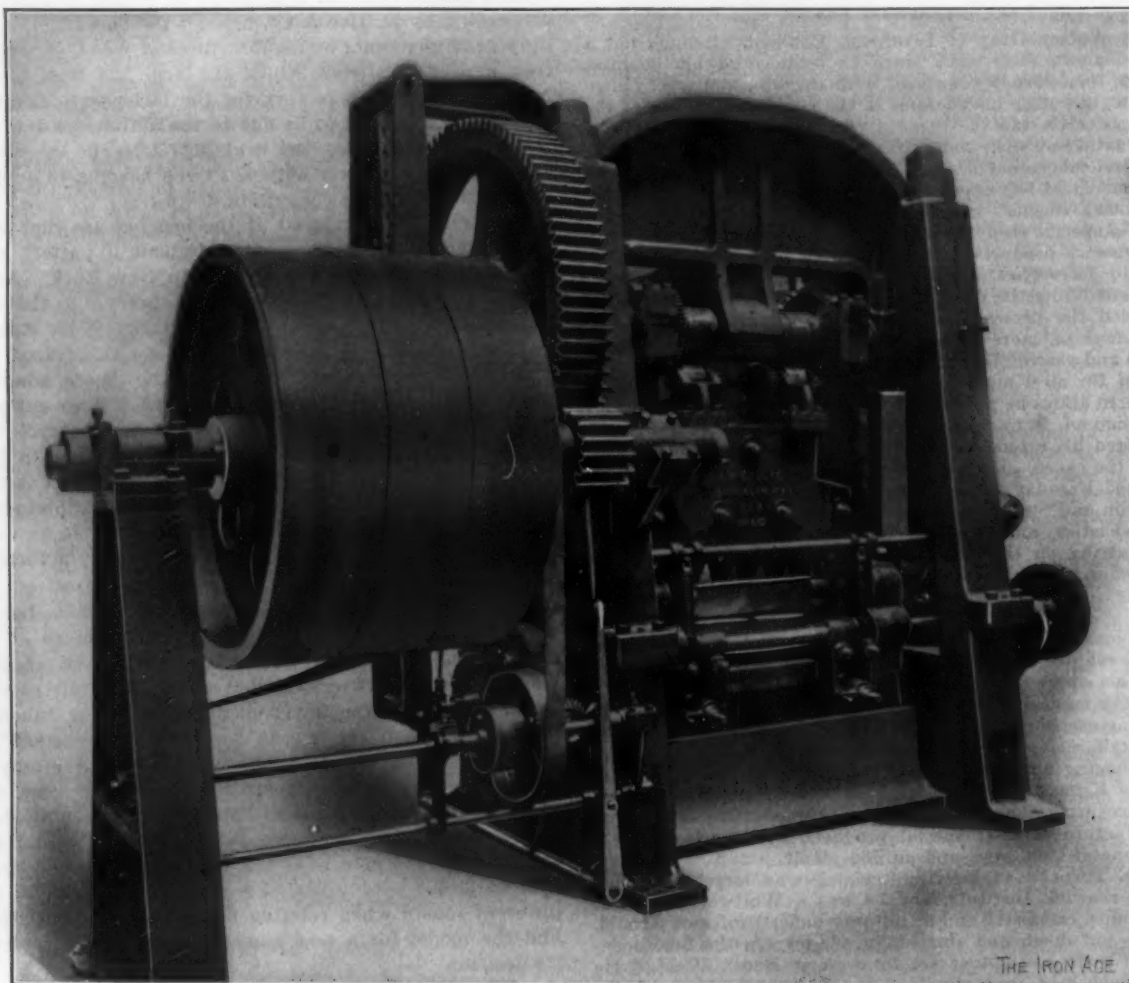
Thermit is composed of aluminum and oxide of iron, pulverized and mixed in certain definite proportions. When burned in a crucible it produces in a few seconds a mild steel, which is then allowed to flow down upon the joint or fracture to be welded, uniting with the old metal to form a perfect weld. When it was first imported the customs officers classified it as a manufacture of metal at 45 per cent., and later as a chemical compound at 25 per cent. The importers are now trying to secure refunds of part of the duty paid on the basis of its being a nonenumerated manufactured article, dutiable at 20 per cent. The decision of the general appraisers, however, will have no effect on the future price of the article, as a factory has been established in New York for its manufacture.

A New Bliss Multiple Punch Press.

The accompanying half-tones show a new multiple punching press especially designed by the E. W. Bliss Company, Brooklyn, N. Y., for operating narrow dies of great length. Although the holes punched by the press are usually not large, the number of them produces an enormous strain, and therefore a heavy press is required. It is particularly adapted for gang punching work, such as plates for boilers and tanks, or other large sheet metal articles and tools, and perforated sheets requiring a large number of perforations.

The press is fitted with a cam actuated stripper, which permits of much shorter and therefore more durable

ones may be fitted with steel bushings set in a machine steel holder, avoiding the difficulties of satisfactorily hardening multiple dies made entirely of tool steel, and permitting of quickly repairing the damage done to any one of the dies by putting in a new bushing. In addition to this staggering motion the rolls have a variable feed motion quite original in design. This mechanism enables the rolls to feed an equal distance for two or three strokes, then varies the length of feed before making the next stroke. For instance, in a period of three strokes of the punch slide, the rolls may be fed two short and one long distance, or *vice versa*, or all three spacings may be equal. By substituting other ratchets and gears a number of combinations may be obtained, thus securing a con-



A New Multiple Punch Press with a Single Row of Dies, Built by the E. W. Bliss Company, Brooklyn, N. Y.

punches than can be employed with stationary strippers. This stripper comes down upon the metal, straightening it out before and holding it straight during the punching and stripping. After stripping it moves up with the punches. This arrangement presents the additional advantage of obviating the blow against the lower side of the stripper plate, which, with stationary strippers, occurs upon the return stroke of the slide because of the necessary play between the die and the fixed stripper, which permits the punched bar or sheet to be carried up against the plate before stripping.

Another notable feature of this press is that it is fitted with open feed rolls adjustable to take any size of sheet up to 50 inches wide. The feed rolls are provided with a side motion which automatically shifts the sheets and rolls sideways at each stroke for the purpose of permitting the perforating of a staggering pattern by means of a single row die. This reciprocating motion which shifts the rolls can be easily adjusted for different patterns. A great advantage accruing from the use of a single row die that will be readily appreciated is that the intermediate holes in the dies being omitted, the remaining

siderable variety of spacing or grouping of the row of holes.

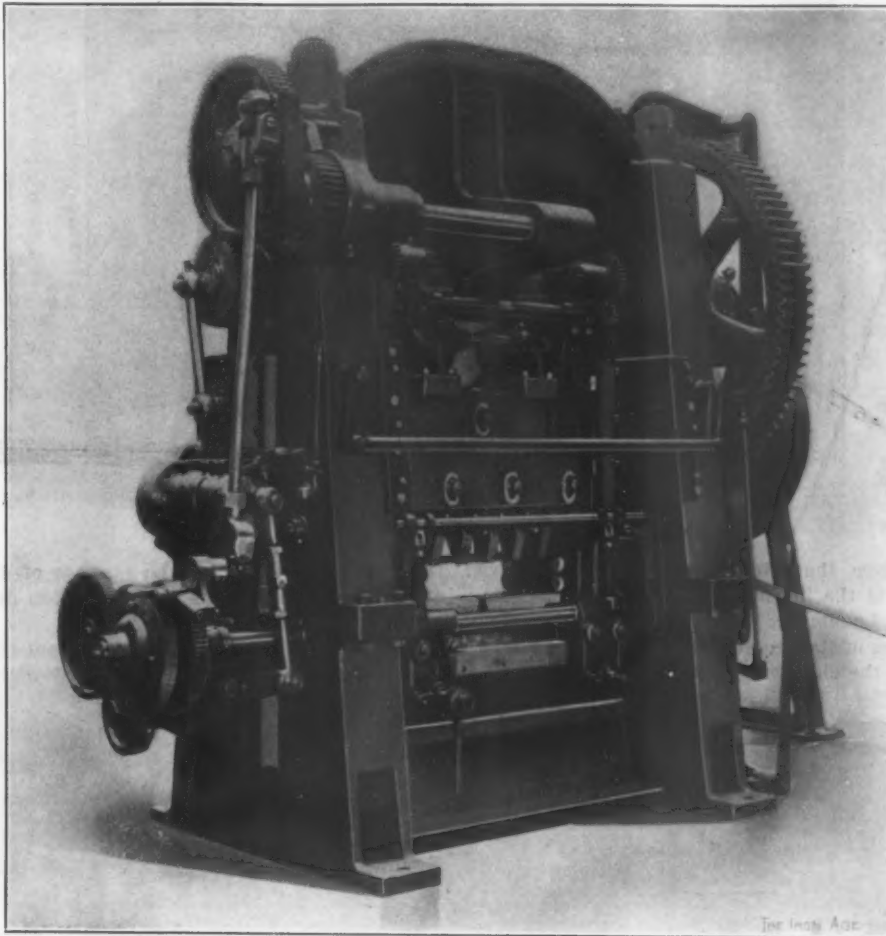
The frame is built up in sections held together with four steel rods $4\frac{1}{2}$ inches in diameter, which materially strengthen the frame and take the strain when the press is in operation. The crank shaft is a solid steel forging $7\frac{1}{2}$ inches in diameter. The main gear, clutch, balance wheel, tight and loose pulleys are all on left hand side of press, supported by an outboard bearing. This arrangement leaves both the front and back of press free from all mechanism which might in any way interfere with the operator. The clutch mechanism is of the jaw type and is actuated by an air cylinder. Alongside of the fly wheel, which is 50 inches in diameter and 10 inches wide, is another wheel of the same dimensions drilled with 12 socket holes equally divided around the circumference to receive starting levers for turning the machine over when setting the dies. The distance between housings is 64 inches; height to center of shaft, 85 inches; total height, 126 inches; total floor space, 89 inches front to back by 170 inches right to left; total weight is about 55,000 pounds.

The Pratt Institute.

As the manufacturing end of various branches of business is being developed along scientific lines a greater demand is constantly being created for young men with technical training and with practical experience. Particularly is this so in a mechanical industry or one in which a knowledge of chemistry is necessary. To supply this demand has been the aim of the Pratt Institute, Brooklyn, N. Y., which has for several years maintained courses for the necessary mechanical, technical and scientific training to enable young men after they have had practical experience to become foremen and superintendents of large plants. The day and evening classes at the institute have become so crowded that it has been decided

tically a thing of the past, as both of these plants are in operation to nearly full capacity.

The New England Foundrymen's Association.—The monthly meeting of the New England Foundrymen's Association was held at the Exchange Club, Boston, on October 12, with President B. M. Shaw in the chair. A report was received on the death of Archer Brown of Rogers, Brown & Co., and President Shaw appointed John Magee of the Magee Furnace Company, A. L. Lovejoy of the Becker-Brainard Milling Machine Company and W. B. Snow of the B. F. Sturtevant Company as a committee to prepare resolutions. C. H. Thomas, Newark, N. J., president of the Foundry Foremen's Associa-



View of the Opposite Side of the Bliss Multiple Punch Press. There are Two Clutch Controlling Levers, so that the Press May be Operated from Either Side.

to erect a new annex which will be used for class rooms in chemistry and machine shops for practical demonstrations. The new building will be 50 x 130 feet, four stories high, costing, when equipped, about \$100,000. The fourth floor will contain large laboratories devoted to industrial chemistry, electro chemistry, assaying, water and gas analysis and organic chemistry, while the whole of the third floor will be given over to general chemistry and to quantitative and qualitative analysis. The second floor will be used for offices, drawing and designing rooms and lecture rooms for mathematics, mechanics and strength of materials. The ground floor will be used for carpenter and pattern making shop and will be equipped with wood working machinery. With these new facilities the institute claims that it will have the largest and most complete machine shop equipment of any school in the country.

The Carnegie Relief Association, composed of workmen at the Upper and Lower mills of the Carnegie Steel Company, at Youngstown, Ohio, who went on strike last July, has decided to disband. The strike at the Girard and Youngstown hoop mills of the company is prac-

tion, read a paper on "The Casting of Iron," which he illustrated by samples, and Thomas D. West, Sharpsville, Pa., delivered an address on "Shrinkage Troubles and Methods of Feeding." The usual dinner was enjoyed.

The Worcester Metal Trades Association held a dinner at the Bay State House, Worcester, Mass., the evening of October 11, with a large attendance. Among the guests was W. P. Eagan, commissioner of the National Metal Trades Association. The after-dinner speaking was participated in by Mr. Eagan, Charles E. Hildreth of P. Blaisdell & Co., local representative of the Executive Council of the National Metal Trades Association; E. M. Woodward and A. M. Powell of the Woodward & Powell Planer Company, Paul B. Morgan of the Morgan Construction Company, Frank L. Coes of the Coes Wrench Company, A. W. Whitcomb of the Whitcomb Mfg. Company, Enoch Earle of P. Blaisdell & Co., H. G. Barr and J. P. Coghlin. George F. Brooks of the Harrington & Richardson Arms Company, vice-president of the association, presided in the absence of President F. E. Reed.

Sherardizing.

A New Process for Protecting Iron and Steel from Corrosion.

In the "Notes from Great Britain" in *The Iron Age* for June 30, 1904, mention was made of a new process for protecting iron and steel from corrosion, known as

to the atmosphere is a problem which all engineers have to deal with, whether civil, mechanical or electrical. Zinc has proved the most effective coating for iron and steel, and hot galvanizing, with all its attendant disadvantages, is the process most extensively used for applying the zinc coating. Electro-zincing or cold galvanizing is employed for special classes of work and is extensively used by the British Admiralty for giving boiler tubes a

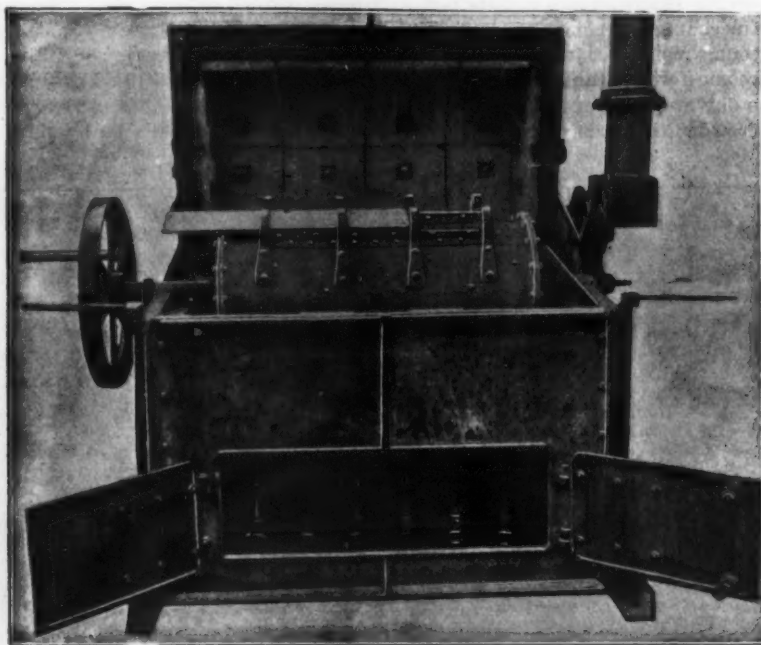


Fig. 1.—Gas Furnace for Sherardizing Small Articles.

Sherardizing. Since that time more particulars have been obtained from the inventor, Sherard Cowper-Coles, 82 Victoria street, London, S. W., making possible a more detailed description of the process. Several questions have arisen concerning the chemical processes and metallurgi-

thin flashing of zinc for the purpose of detecting flaws and protecting the tubes from corrosion during the time of assembly and inaction.

One point of particular interest about the new process is that iron and steel can be coated with a thin even

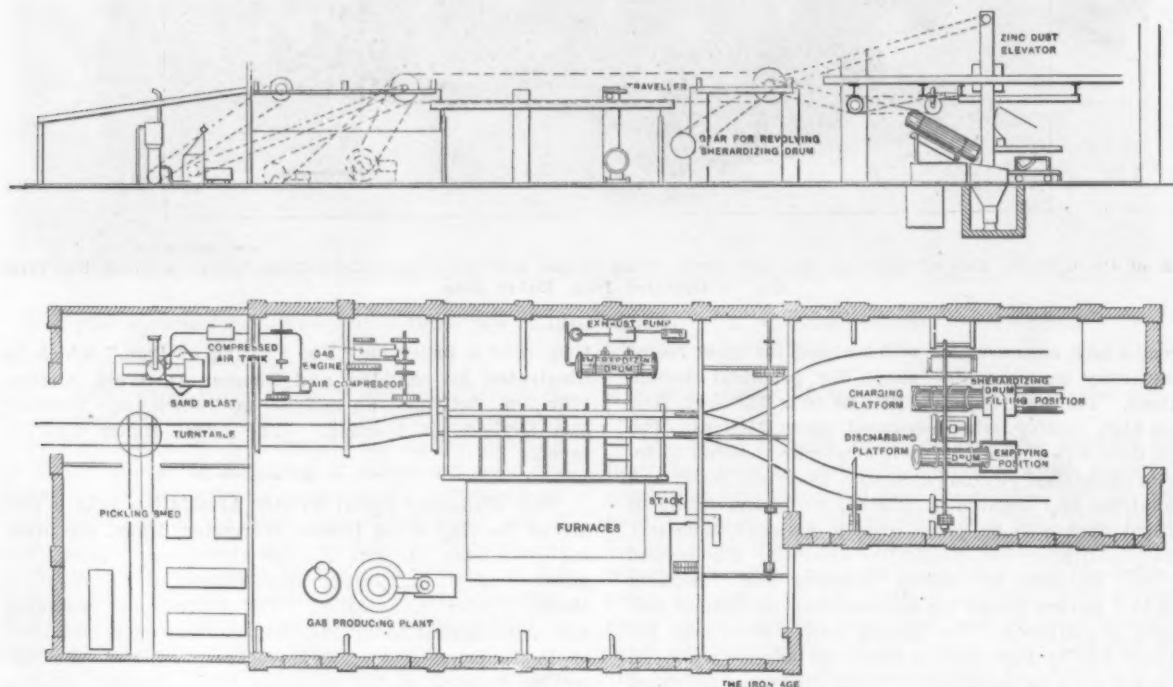


Fig. 2.—Elevation and Layout of a Recently Completed Sherardizing Plant.

cal affinities which have yet to be solved. Sherard Cowper-Coles is now engaged in an investigation into these questions, and it is hoped that later a more scientific aspect of the process may be given to the public.

The rapid corrosion of iron and steel when exposed

deposit of zinc at a temperature about 200 degrees below the melting point of zinc. The first step in the process is to free the iron from scale and oxide by any of the well-known methods, such as immersing in an acid solution or sand-blasting. The articles to be rendered rust proof are

then placed in a closed receptacle or drum, charged with zinc dust, which is heated to a temperature of from 500 to 600 degrees F. for a few hours. The drum is supported so that it may be oscillated and is mounted on a truck, upon which it is run into a furnace and there kept for the desired length of time. The drum is then removed and allowed to cool, and the iron articles removed, when they are found to be coated with a fine, homogeneous covering of zinc, the thickness depending on the temperature which has been maintained and the length of time that the process has continued. The low

process are case-hardened on the surface and can be rendered so hard as to turn the edge of a steel tool.

The zinc powder used in the process is the zinc dust of commerce, and must not be confused with zinc oxide; it is obtained during the process of distilling zinc from its ores. Zinc dust at the present time is used for a variety of purposes, and can be obtained in any desired quantity at slightly below the average price of virgin spelter. The analyses of two samples of zinc dust such as are employed for Sherardizing gave respectively 85.06 per cent. and 81.86 per cent. metallic zinc. Both samples

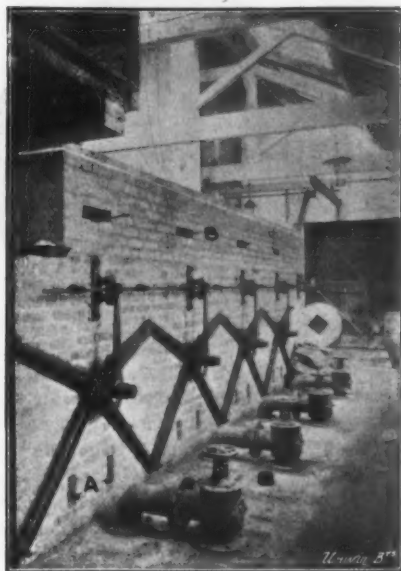


Fig. 3.—Gearing for Rotating Drums and Valves Controlling Gas Supply.

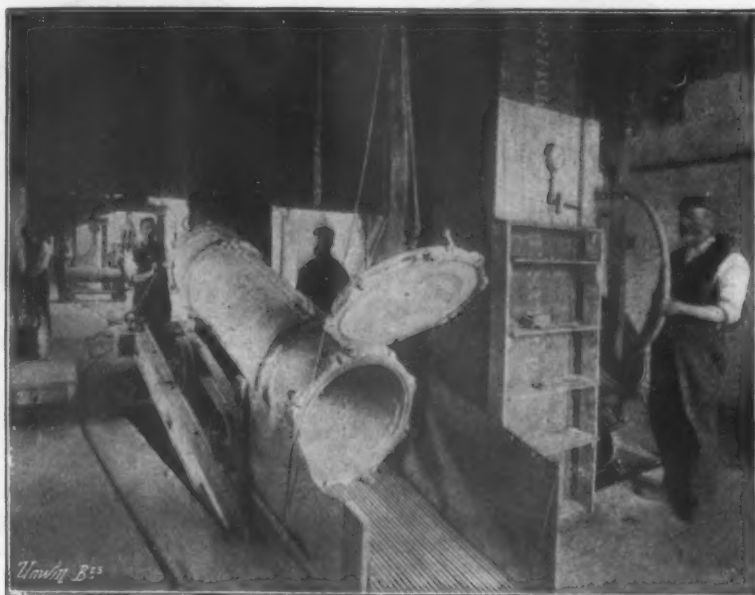


Fig. 4.—A Drum and Truck on the Charging Table.

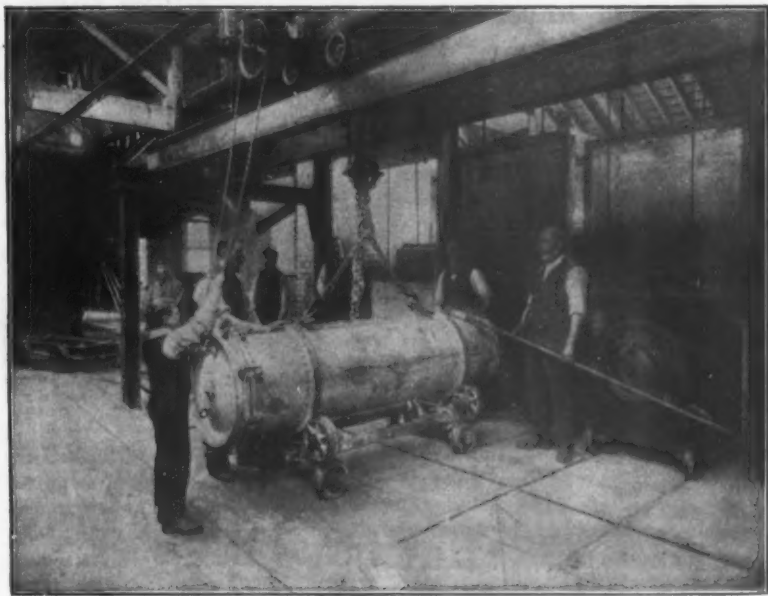


Fig. 5.—A Drum and Truck About to Be Introduced into the Furnace.

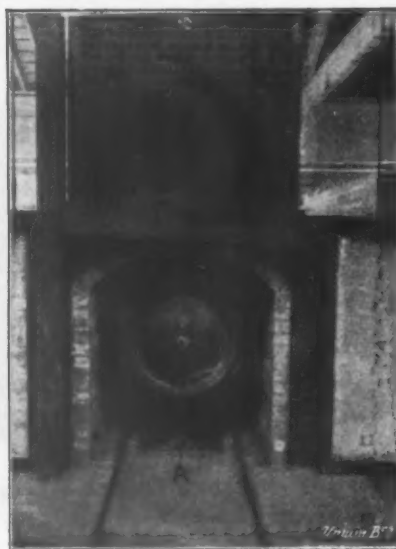


Fig. 6.—Furnace with Drum in Position.

temperature required makes the process cheap as compared to the process of dipping in molten zinc, and has the additional advantage that it does not deteriorate iron or steel of small section to the same extent as hot galvanizing does. The whole of the zinc is consumed, consequently there is no waste as in the hot galvanizing process. This new process of dry galvanizing is not limited to the coating of iron with zinc, but has been successfully applied to coating iron with copper, aluminum and antimony. It has also been applied to coating various other metals—for instance, aluminum and copper—with zinc. Copper and its alloys subjected to this

when examined under the microscope seemed to contain small, bright metallic beads unevenly distributed through the dust, and it is probable that this may account for the different percentages given by analysis. One of the peculiar properties of zinc dust is that it cannot be smelted or reduced to the metallic form under ordinary conditions, even when heated to a very high temperature under considerable pressure. This property is very advantageous for the Sherardizing process of dry galvanizing, as it does away with the risk of melting the finely divided zinc by overheating the furnace.

The receptacle in which the zinc dust is placed and

heated is preferably air tight, and the air exhausted so as to prevent the formation of too much zinc oxide, or, if this is not feasible, it is found advisable to add about 3 per cent. of finely divided carbon. If the percentage of oxide is allowed to increase beyond certain limits it is found that the deposits become dull in appearance instead of having a bright metallic luster, although good deposits of zinc can be obtained from zinc dust varying considerably in composition. To prevent the iron receptacle in which the process of Sherardizing is carried on from becoming too thickly coated with zinc it is found

cylinder is oscillated on its axis; in the former case it is rotated and provided with baffle plates, to cause the articles to be turned over to bring all parts into intimate contact with the zinc dust and insure a uniform coating.

Fig. 1 shows such a furnace, suitable for Sherardizing 1 or 2 hundredweight of small articles at a time. One of the trunnions is made hollow, so that a pyrometer can be inserted. Below the furnace is arranged a number of Bunsen gas burners for heating the drum, and the whole is inclosed in a cast iron shell lined with fire brick. The drum can be rotated either by hand intermittently or con-



Fig. 7.—Hot Galvanizing.



Fig. 8.—Cold Galvanizing.



Fig. 9.—Sherardizing.

Photomicrographs of Iron Coated by Various Processes.

advantageous to coat the inside of the drum with plum-bago or black lead.

Articles coated with grease receive as good, if not a better, coating of zinc than those which are free from grease. This makes it possible to put bolts, nuts, screws, &c., directly into the Sherardizing drum after machining, without any preparation or cleaning. The articles, after being heated in the zinc dust, can be removed while still hot, although the better practice is to allow them to cool until they can be readily handled, as the deposit of zinc is whiter and less oxide of zinc is formed. This new process of dry galvanizing offers many facilities and great economy to those manufacturers who have not suffi-

ciently by means of suitable gearing. The plant required for Sherardizing all classes of work must of necessity be modified to suit the different classes of work. For instance, if it is required to Sherardize an expanding gate or girder an iron box would be used, which would be kept stationary during the process, the gate being opened to its full extent during the operation. Tubes require a different construction of drum from that required for bolts and nuts, and wire and sheets also require modified arrangements to enable the work to be handled expeditiously.

Fig. 2 shows a general arrangement of a Sherardizing plant which has recently been completed, comprising four

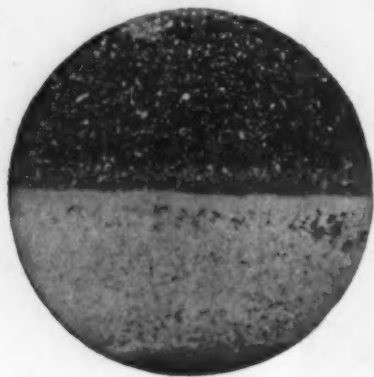


Fig. 10.



Fig. 11.

Micrographs Showing the Zinc-Iron Alloy Between the Iron and the Zinc Coating.

cient work to keep a large bath of molten zinc continuously employed. Articles can be Sherardized at a few hours' notice, starting all cold, as the drums can readily be heated by gas or coke furnaces, the whole operation occupying only a few hours.

A useful type of furnace for small work consists of a closed iron chamber in the form of a cylinder or polygon, arranged to be rotated or oscillated about an axis. An iron door is provided either at one end or at the side, depending upon the class of articles to be treated. A side door is the most suitable for small articles, such as bolts, nuts, small castings, &c., and the end doors for tubes, oblong or cylindrical articles. In the latter case the

furnaces which are capable of taking 2 x 8 foot drums, with a cubic capacity of 2 tons of material at a charge, the weight of iron capable of being Sherardized per charge depending on how close the articles pack. The furnaces are heated by Dowson gas, the gas being led by iron pipes to the back of the furnaces and the supply of gas being controlled by iron cocks, as shown in Fig. 3. The gas is then conducted through brick channels and air is drawn through the inlets A, Fig. 3, and the gas is burnt at the cast iron burners shown at A in Fig. 6.

The charging of the drum is effected by placing the drum on a truck and running the latter onto a table, one end of which is lowered by means of gearing

so as to tilt the other end, into which the zinc dust is charged from an upper floor by means of a chute, as shown at the right in Fig. 4. A drum being discharged over an iron grating is shown at the left in Fig. 4. The zinc is caused to fall into a chamber below, from which it is raised by means of a chain elevator to the floor

of steel and iron bolts Sherardized at varying temperatures, when tested for tensile strength, were found to be equal in strength to bolts which had not been Sherardized. The following table gives the result of tests for tensile strength upon four untreated and four treated Sherardized specimens of steel rod:

	Dimensions.	Extension.			On original area. Elastic limit. (Yields point.) Pounds per square inch.	Maximum stress. Pounds per square inch.	Remarks.
		Area. Square inch.	Reduction of fracture. Per cent.	On 2 inches. Per cent.			
Untreated steel rod.	0.276 x 0.277	0.0774	..	1.0	70,358	121,676	Irregular fracture. Broke outside datum points in jaws.
Untreated steel rod.	0.274 x 0.274	0.0750	6.6	3.0	49,280	150,796	Broke outside datum points in jaws.
Untreated steel rod.	0.278 x 0.278	0.0772	..	3.5	73,987	149,408	Irregular fracture.
Untreated steel rod.	0.283 x 0.268	0.0758	3.7	3.0	69,440	153,932	Broke outside datum points in jaws.
Sherardized steel rod.	0.279 x 0.285	0.0795	19.9	7.0	113,545	156,598	Steel rods treated.
Sherardized steel rod.	0.274 x 0.279	0.0764	6.7	4.0	102,032	148,064	Broke outside datum points in jaws.
Sherardized steel rod.	0.274 x 0.283	0.0775	15.9	6.0	{ Not observable }	154,918	
Sherardized steel rod.	0.276 x 0.284	0.0783	4.8	3.5		149,632	Broke outside datum points in jaws.

above. When the drum is charged with zinc dust and the articles to be Sherardized it is brought into a horizontal position, the air is exhausted and the truck is run out of the charging room. The drum is then conveyed by an overhead trolley to the front of the furnaces and is lowered onto a furnace truck, Fig. 5. The object of using a separate truck for the furnace is to save waste of heat. The drum is then pushed into the furnace, the door lowered and the furnace heated to the desired temperature, the heat being regulated by the readings of a thermometer which is placed in a vertical iron tube inside the furnace. When the drum has been in the furnace a sufficient time the door is raised and the drum and carriage withdrawn, the drum lifted onto another carriage and run out into an open yard, where it is allowed to cool down to a temperature low enough to admit of easy handling.

The comparison of the surfaces obtained by hot and cold galvanizing and Sherardizing is different in each case, but they can readily be distinguished by any body conversant with the three processes. In the case of hot galvanizing the surface is spangled, or, if not spangled, has the appearance of cast metal. In the case of cold galvanizing the surface is free from spangles and has a matt or frosted surface, uniform if the work has been well executed. Sherardizing is again distinctive from the two former processes; the general appearance resembles more that of cold galvanizing than hot galvanizing, but is more lustrous and metallic, and is uniformly distributed over the whole surface, which is not the case with the hot and cold galvanizing processes. The Sherardizing process, although similar to cold galvanizing in some respects, is also similar to hot galvanizing, inasmuch as the zinc alloys with the iron and forms a protective zinc-iron alloy between the zinc coating and the underlying metal. Fig. 7 shows a photomicrograph of hot galvanizing, the line in the center showing the line of demarcation between the crystal or spangles. Fig. 8 shows zinc electro deposited by the regenerative process from a solution of zinc sulphate, kept in the best working condition by passing the electrolyte through a filter bed of zinc dust and coke, the current density being about 20 amperes per square foot of cathode surface. Fig. 9 shows an iron surface coated with zinc by the Sherardizing process.

In practice Sherardized iron and steel are found to withstand to a remarkable degree the ordinary corrosive agents to which galvanized iron is exposed; even after the apparent removal of all the zinc by filing or abrasion the iron is still noncorrosive. This valuable property is doubtless due to the protective action of the zinc-iron alloy formed on the boundary line between the iron and zinc and which is clearly shown on the photomicrographs, Figs. 11 and 12.

As Sherardizing is effected at a very much lower temperature than hot galvanizing, the temper of steel wire is not reduced as it is in the latter process. A number

The advantages claimed for the Sherardizing process may be summed up as follows: There is no waste of zinc due to the formation of zinc-iron alloys, as less zinc is required to give the same protective coating, because the zinc is evenly distributed. The temperature required is lower, consequently the amount of fuel consumed is less. The labor is less, as the articles do not require to be cleansed as carefully as in hot galvanizing. The cost of working is less than hot galvanizing, the plant is very much cheaper, there is no waste of zinc, no flux required, no dross or skimmings formed, no danger of explosion or breaking of castings and distorting of thin iron work. Sherardized machine work does not require refitting, as the coating is evenly distributed. There is no reduction in tensile strength, as in the case of hot galvanizing; the coating is more uniform and even than that obtained in hot or cold galvanizing, the work can be placed direct in the Sherardizing drum from the pickling vat without drying, the process can be worked intermittently without waste, iron can be coated with zinc to any desired thickness. Another advantage of Sherardizing, provided sufficient time is given for coating, is that it has the effect of bringing the surface into a more uniform state of tension.

The Thomas Iron Company, Hokendauqua, Pa., has issued an interesting 62-page report of the proceedings of the special meeting of its stockholders, held June 1, 1904, to celebrate the fiftieth anniversary of the formation of the company. The speeches made on this occasion are thus preserved, together with extracts from letters received and a number of newspaper reports. The volume, which is a fine specimen of book work, is not only of present interest to the Thomas Iron Company's stockholders, but in connection with the magnificent history of the company which was distributed at the jubilee celebration, it will in future years form a valued record. Both these volumes are understood to have been the work mainly, if not entirely, of President B. F. Fackenthal, Jr., and their plan and execution reflect great credit upon his good judgment and literary ability.

October 11 probably holds the record for launchings of Government vessels, for that day there were three distinct types launched at three separate yards. The largest, the first-class battle ship "Georgia," was launched at noon at the Bath Iron Works, Bath, Maine. She belongs to the most powerful type of battle ship afloat and is the largest vessel ever built in Maine. At the works of the Gas Engine & Power Company & Charles L. Seabury Company, Morris Heights, N. Y., the gunboat "Paducah" entered the water a little before noon. The United States brig "Boxer," which is to be used as a training ship by the Naval Academy, Annapolis, and which is the first of her class built for the purpose, was launched at the Portsmouth Navy Yard.

The Rolling of Sections in Iron and Steel.—II.*

BY ADOLPH S. WHILE, HUGHESOFFKA, RUSSIA.

The Rolling of Double Tees or Beams.

Double tees or beams are much simpler to roll than tees, as the metal in all of the passes is equally divided on both sides of the vertical center line, and in the finishing pass on both sides of both vertical and horizontal

any proportion of draft it will not follow that the necessary width is thereby retained, the flanges invariably reducing in width without any draft being applied by reason of the elongation of the web resulting from applied draft over that portion, or the thickness of the flanges themselves debarring them from a ready entrance to the succeeding pass. If no pressure be applied to the points of the flanges, they, unless of exceptional quality, would have a tendency to tear, particularly in the last or finishing passes, owing to reduced temperature. Therefore, it

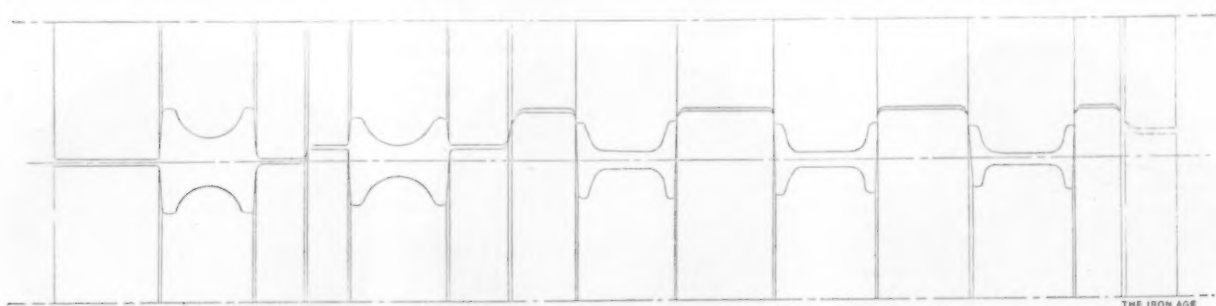


Fig. 1.—Roughing Rolls for Double Tees or Beams, Balanced from Below.—Scale, $\frac{3}{4}$ Inch to 1 Foot.

center lines in relation to the axis of the rolls. The more uniform the section the less does it suffer from the breaking or tearing of the surface skin consequent upon unequal draft or lowered temperature involved in the process of rolling. In a mill specially designed for this class of work no appreciable difficulties are encountered, the length and number of the rolls admitting of sufficient

is strongly advocated to obtain as early as is possible sufficient width and thinness of flange when the metal is of a high temperature, enabling the proportion of draft over the subsequent passes to be more equally distributed, thus minimizing the attending evils of cracking and restricting the possibility of their further penetration into the bar. The proportioned amount of draft on the flanges

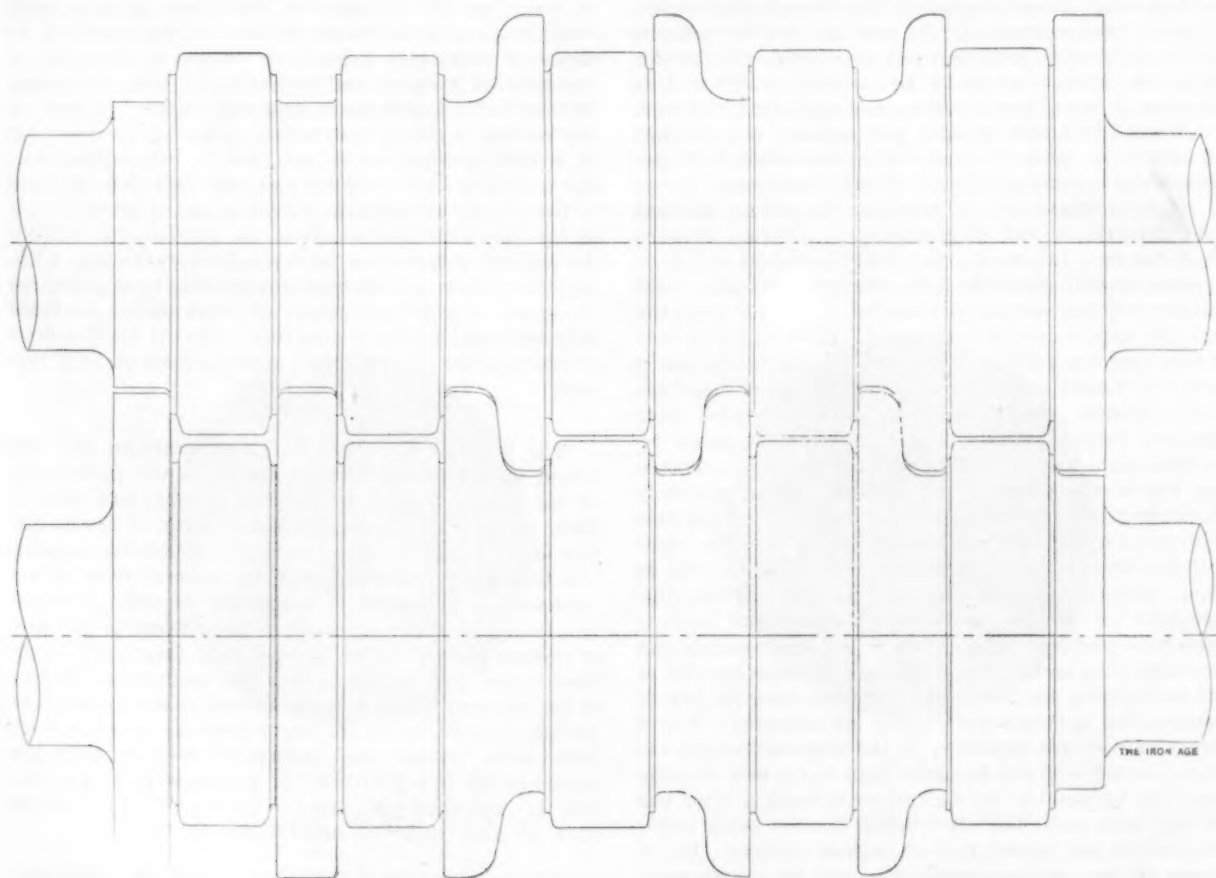


Fig. 2.—Roughing Rolls for Double Tees or Beams, Balanced from Below.—Scale, $\frac{3}{4}$ Inch to 1 Foot.

passes to reduce the bloom continuously to the required section.

In rolling beams the chief consideration would be to obtain the requisite rapid displacement of metal in the web, when the prevailing high temperature and consequent additional plasticity of metal admit of a readier flow, and yet conserve the necessary proportionate width of flange. By excluding the points of the flanges from

counterbalancing that on the web, the consequent longitudinal elongation of the bar would be more nearly equalized, and, as a result, in the finishing passes any manifest tendency to crack or tear in the earlier stages would disappear, and any buckling of the web which would invariably ensue, particularly in the later stages if the flanges were receiving insufficient draft, would by this treatment entirely disappear.

To acquire the thinness and retain the necessary width of flanges most expeditiously, the edges of the

* The first part of this article was published in *The Iron Age*, October 13, page 12.

bar should be alternately covered by the collars of the roll. This may be done by turning the bar over from one pass to another; thus the additional length of horn, acquired on the open side of the pass, is by judicious and accurately regulated side pressure, which necessitates a reference to practical experience, made thin enough to enter the succeeding pass with the closed collar. Otherwise, if entered too thick, the points of the flanges would not fill, and notwithstanding the extra length of flange, the tendency would be to lower, the metal flowing back to the place of least resistance, either to the web or overfilling of flanges on the open side. This difficulty is obviated by an arrangement of collars as indicated by Figs.

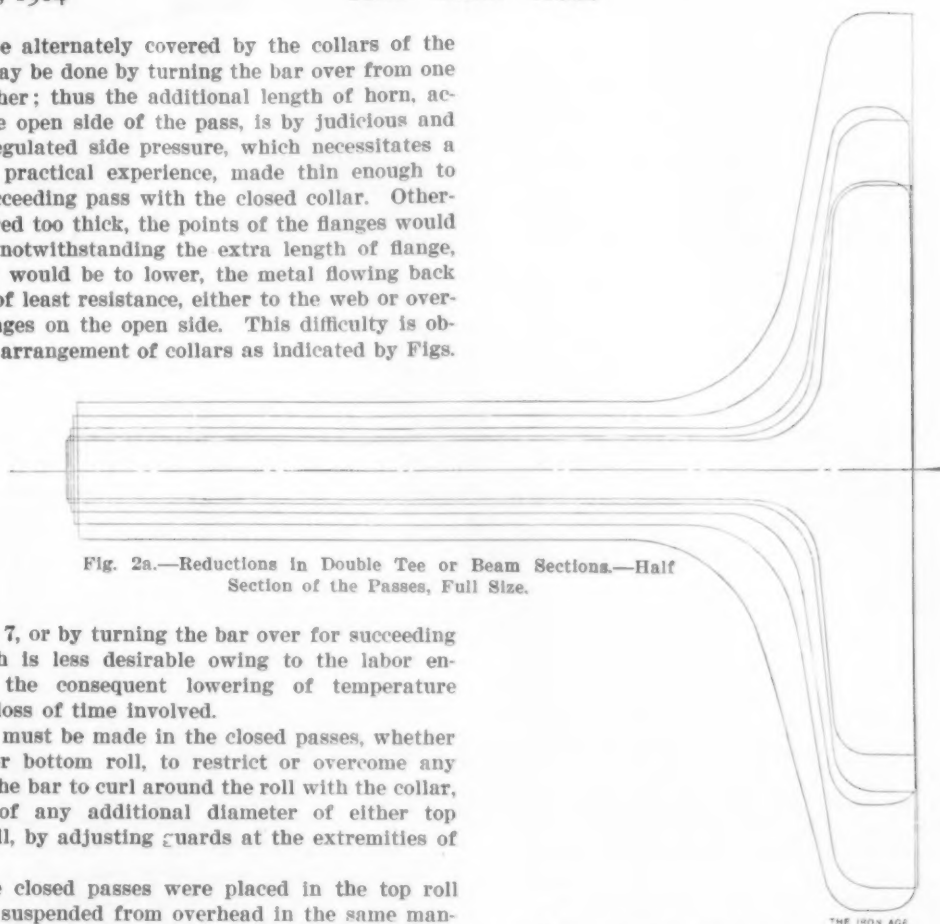


Fig. 2a.—Reductions in Double Tee or Beam Sections.—Half Section of the Passes, Full Size.

2, 3, 4, 6 and 7, or by turning the bar over for succeeding passes, which is less desirable owing to the labor entailed, and the consequent lowering of temperature through the loss of time involved.

Provision must be made in the closed passes, whether in the top or bottom roll, to restrict or overcome any tendency of the bar to curl around the roll with the collar, irrespective of any additional diameter of either top or bottom roll, by adjusting guards at the extremities of the flanges.

When the closed passes were placed in the top roll guards were suspended from overhead in the same manner as in a three-high mill. It is evident no guards would be required on the open side of the pass.

For sections of this description a three-high mill is well adapted on account of the increased number of

roughing rolls, balanced from below, were lifted $\frac{7}{8}$ inch to receive the bloom as it entered the first pass. The area of the portion of the groove in the top roll was then lessened by the roll being lowered to its initial position,

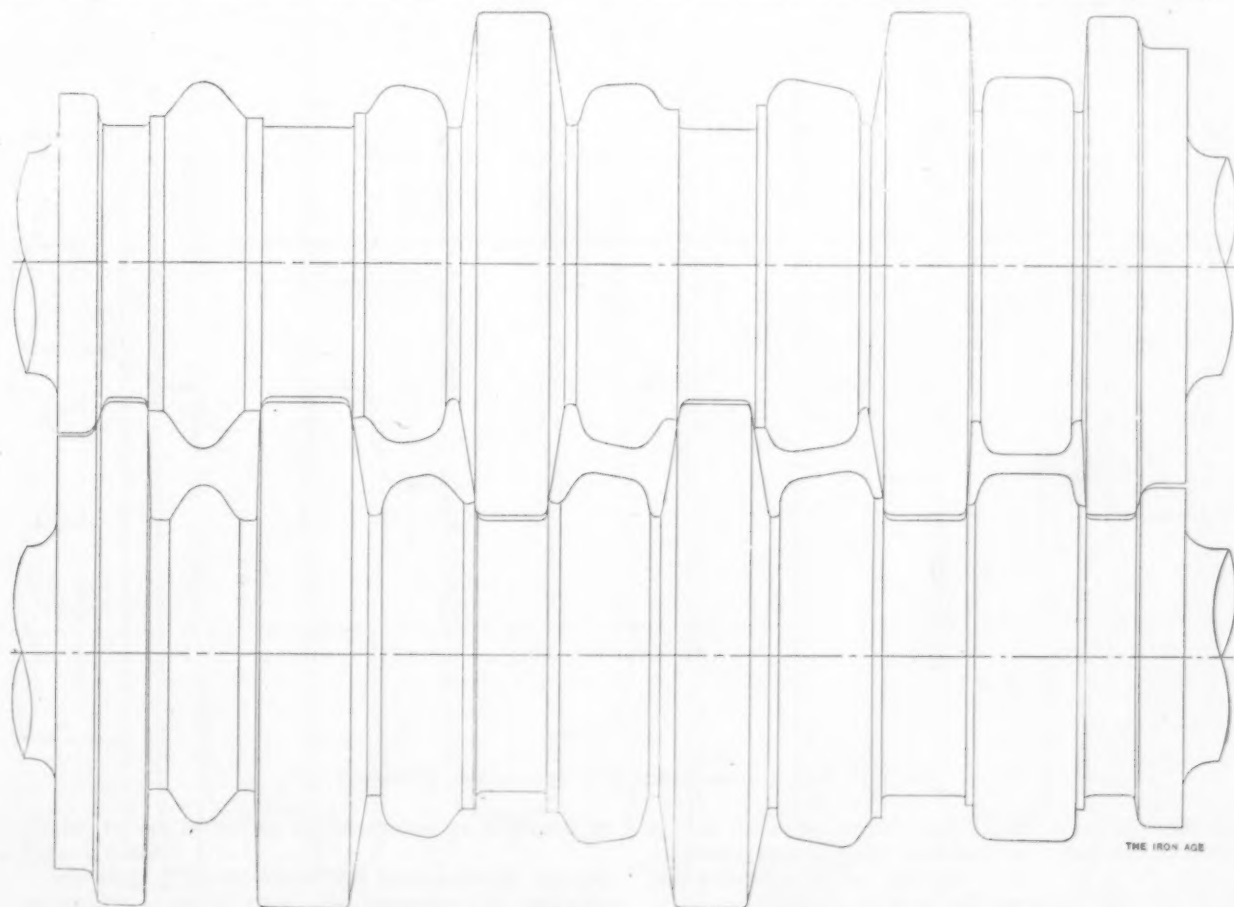
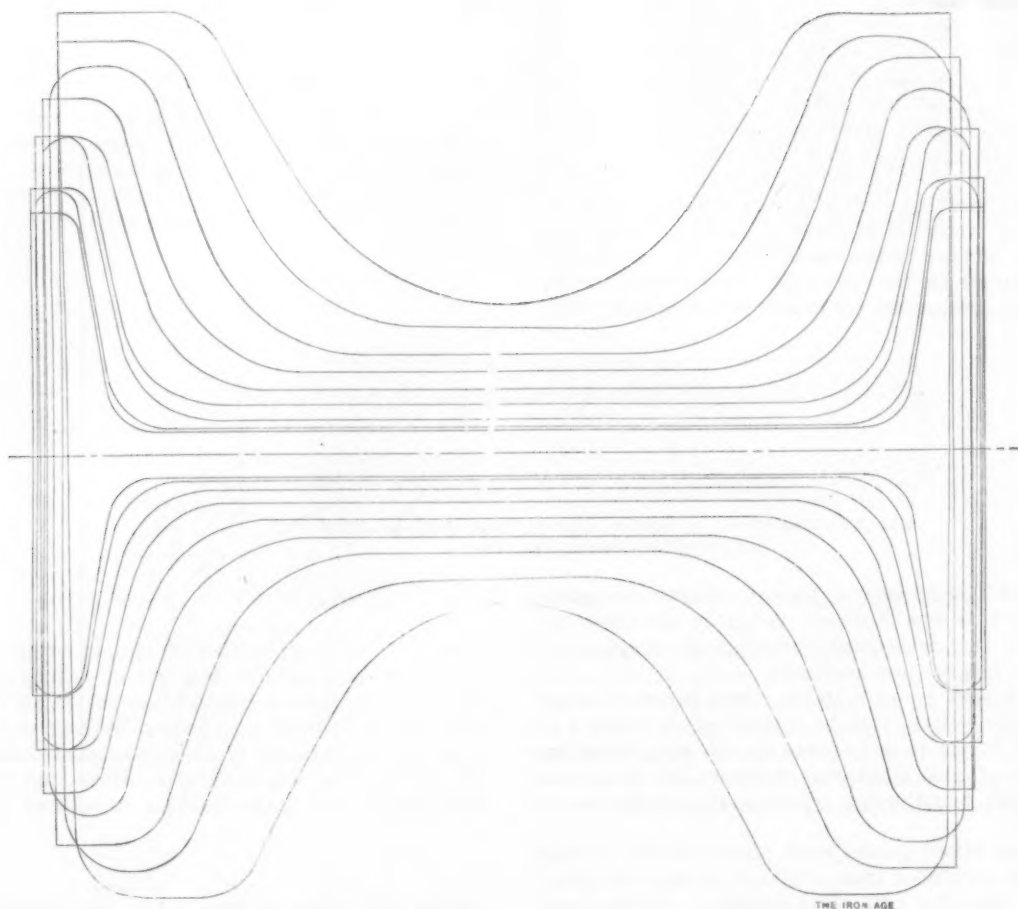


Fig. 3.—Arrangement of Collars to Fill the Thin Flanges.—Scale, $\frac{3}{4}$ Inch to 1 Foot.

passes available, the middle roll in the roughing pass being doubly utilized. We will, for the present, confine our attention to reversing mills.

In the design as illustrated by Figs. 1 and 2, the

and the bar was then repassed through this groove, thus doubling the utility of the pass. This was repeated in the succeeding, as also in the third, pass. In the following passes the rolls were in fixed position.



Figs 3a and 4a.--Reductions in Beam Sections.—Half of the Full Size

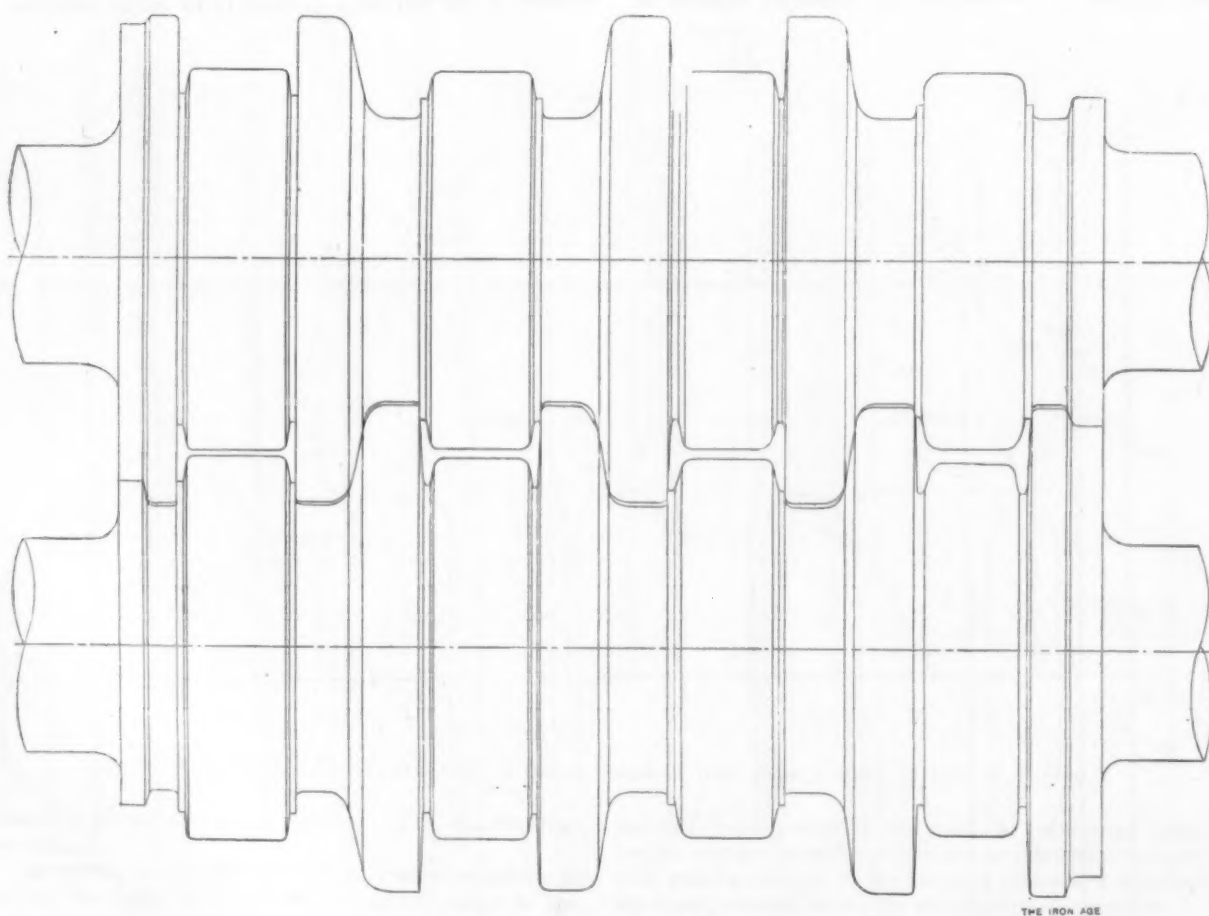


Fig. 4.—Arrangement of Collars to Fill the Thin Flanges.—Scale, $\frac{3}{4}$ Inch to 1 Foot.

Another Method of Rolling Beams.

A method of rolling beams which claims recognition is represented by Figs. 3 and 4 and 4a. In this case the bloom received in the blooming rolls the first outlines of

the required shape before being traversed to the roughing rolls.

It will be noted that the characteristic feature of this method is the position of the passes in the roughing rolls,

as placed on an incline in relation to the center line, this position being altered in each succeeding pass to admit of the bar being alternately covered by the collars. The positions of the passes in the top and bottom roll are arranged to prevent finning at the interstices of the roll and to obviate the necessity of turning the bar over for succeeding passes, which in all cases is undesirable, but particularly so with large sections where it becomes

turned over 90 degrees, being again passed and repassed four times through this same groove, by which it acquired a form as indicated by the dotted line in Fig. 5. The bar was then traversed to the second pass by being turned over one-quarter, 90 degrees, and passed four times through the groove, then twice through the third groove, turned over and passed but once through the last groove on its way for delivery to the roughing rolls. The

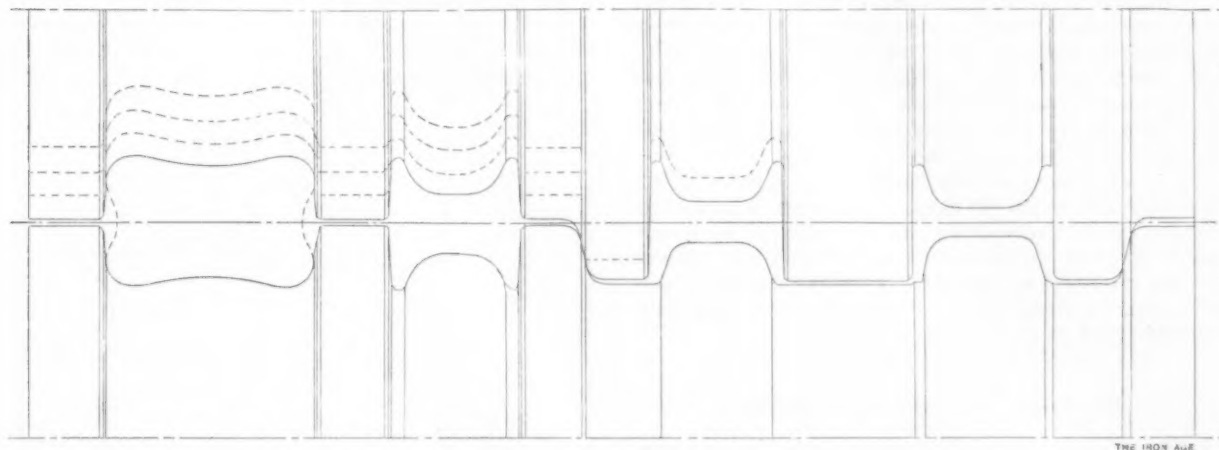


Fig. 5.—Rolling Beams in a Rail Mill.—Scale, $\frac{3}{4}$ Inch to 1 Foot.

a factor of no inconsiderable importance to smooth and rapid working. This, however, is not always possible in every mill, the length of the rolls not permitting.

In a rail mill where it was particularly desirable that no alterations should be made and yet obtain satisfactory results in rolling large beams, it was deemed more ad-

manipulating gear was placed on the front side of the rolls. The blooming rolls had a lift of 8 inches, and the dotted lines indicate the proportion of draft over each groove.

In order that the collars would not interfere with the live rollers on the blooming table, necessary for rail

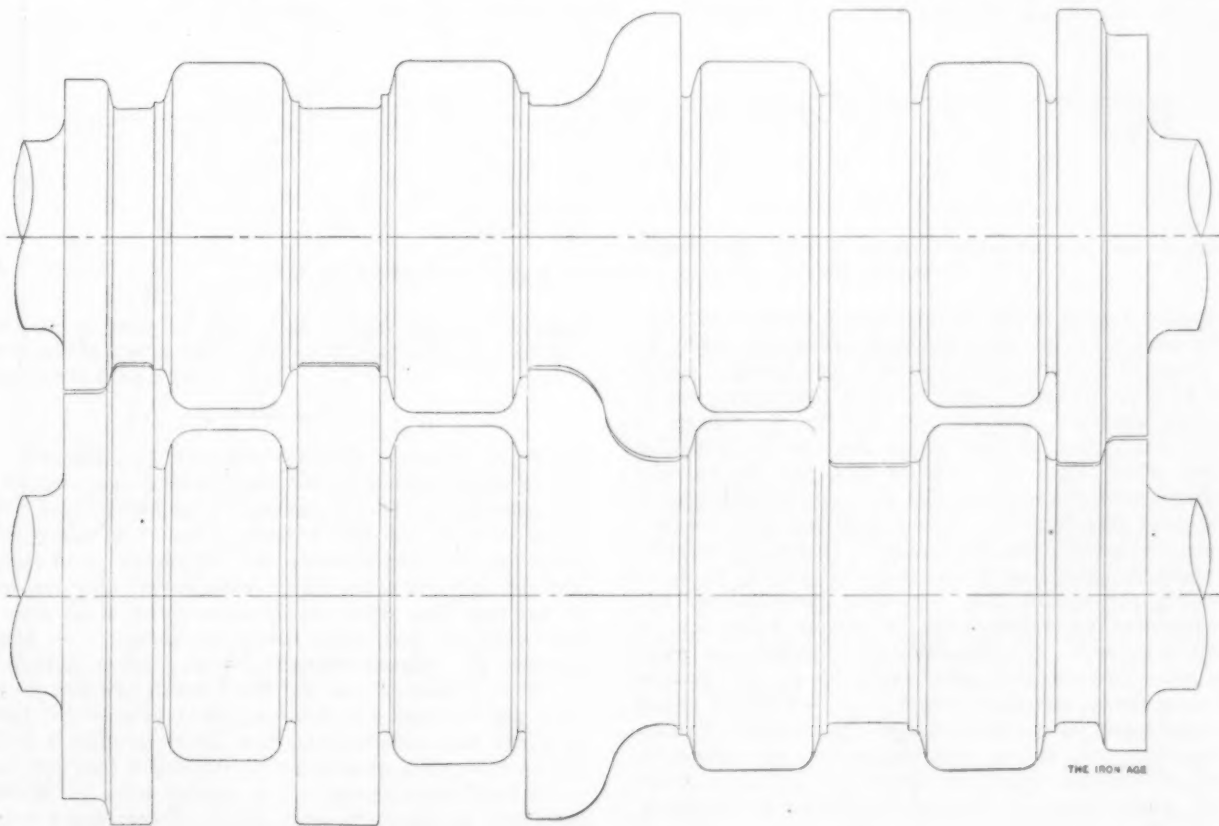


Fig. 6.—Rolling Beams in a Rail Mill.—Scale, $\frac{3}{4}$ Inch to 1 Foot.

visible to roll according to the system as indicated by Figs. 5, 6 and 7.

The chief difficulty which was here manifest was the inadequate length of rolls. To overcome this deficiency and to confer greater ease in manipulating the bar in the prescribed seven passes admitted of by the length of the roughing and finishing rolls, the greater portion of the work on ingots 18 inches square at the base was done in the blooming rolls.

The ingot was passed twice through the first groove,

rolling, the closed passes were placed in the top roll, the necessary guards being attached to a bar which lifted and lowered with the top roll.

In the roughing rolls it will be noted that the first and second grooves are placed respectively one on each end of the roll, with the fourth and fifth in the middle of the roll, the bar being traversed from one side to the other, independent traversers being placed on both sides of the rolls for skidding the bar from pass to pass. In the finishing rolls the first pass is placed in the center of

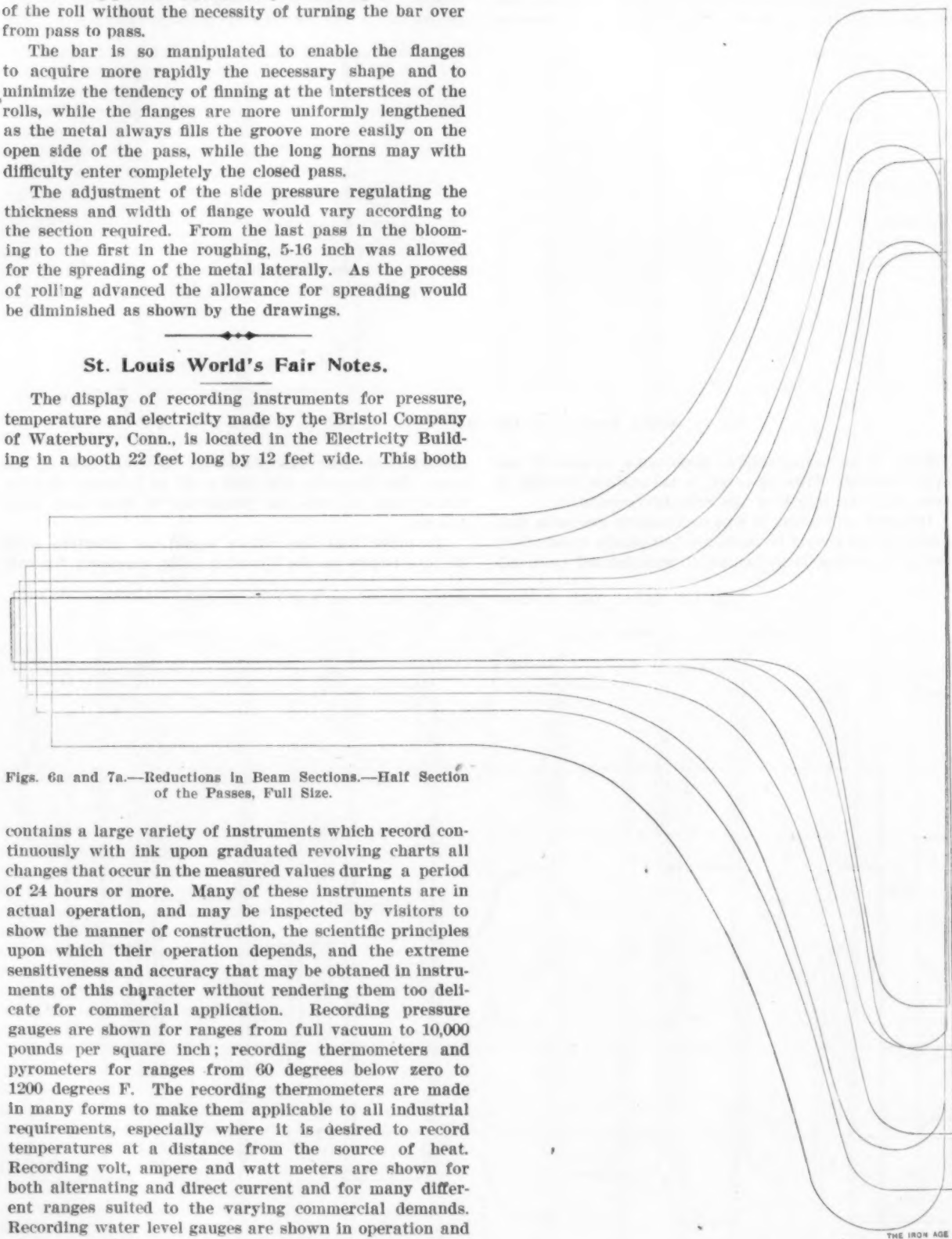
the rolls, the second and third on the ends. This alternated position of the passes in both roughing and finishing rolls is designed for economizing the space of the roll, in order to acquire the maximum thickness with the accompanying strength of collar within the prescribed limits of the roll, and that the corners of the bar would in succeeding passes be alternately covered by the collars of the roll without the necessity of turning the bar over from pass to pass.

The bar is so manipulated to enable the flanges to acquire more rapidly the necessary shape and to minimize the tendency of finning at the interstices of the rolls, while the flanges are more uniformly lengthened as the metal always fills the groove more easily on the open side of the pass, while the long horns may with difficulty enter completely the closed pass.

The adjustment of the side pressure regulating the thickness and width of flange would vary according to the section required. From the last pass in the blooming to the first in the roughing, 5-16 inch was allowed for the spreading of the metal laterally. As the process of rolling advanced the allowance for spreading would be diminished as shown by the drawings.

St. Louis World's Fair Notes.

The display of recording instruments for pressure, temperature and electricity made by the Bristol Company of Waterbury, Conn., is located in the Electricity Building in a booth 22 feet long by 12 feet wide. This booth



Figs. 6a and 7a.—Reductions in Beam Sections.—Half Section of the Passes, Full Size.

contains a large variety of instruments which record continuously with ink upon graduated revolving charts all changes that occur in the measured values during a period of 24 hours or more. Many of these instruments are in actual operation, and may be inspected by visitors to show the manner of construction, the scientific principles upon which their operation depends, and the extreme sensitiveness and accuracy that may be obtained in instruments of this character without rendering them too delicate for commercial application. Recording pressure gauges are shown for ranges from full vacuum to 10,000 pounds per square inch; recording thermometers and pyrometers for ranges from 60 degrees below zero to 1200 degrees F. The recording thermometers are made in many forms to make them applicable to all industrial requirements, especially where it is desired to record temperatures at a distance from the source of heat. Recording volt, ampere and watt meters are shown for both alternating and direct current and for many different ranges suited to the varying commercial demands. Recording water level gauges are shown in operation and also a new instrument which is designated as a thermometer-thermostat. This last instrument is so constructed that it may be used to give an alarm or set in operation temperature regulating apparatus at any predetermined point of temperature. A full line of sizes of Bristol's patent steel belt lacing is also exhibited and includes styles and sizes of lacing for all varieties and thicknesses of belting.

The apparatus exhibited by the Acme Water Storage & Construction Company in block 44, aisle 9, Machinery Building, is intended to make possible the constant supply of water under high pressure for tall buildings, country

residences and small municipal water works, displacing water towers or elevated tanks. The system involves the use of two air tight tanks, a pump and an air compressor. One tank is kept constantly charged with air at a high pressure, while the other contains both air and water, the air being admitted to the second tank from

the first by a pressure reducing valve set to give constant pressure in the second tank and the water being forced into the tank by a pump. The entire contents of the water tank may be used under a constant pressure without operating either the compressor or pump, and it is necessary to run the latter only at such times as are found convenient for charging the system. As the water is pumped into the water tank the air is removed by the compressor and returned to the air tank, so that the water pump always operates against a uniform pressure.

The apparatus exhibited includes two tanks, each 5 feet in diameter and 10 feet long, and an air compressor and a pump operated by a single 5 horse-power gas engine. The pump is of the Deane vertical, triplex, geared type, and is fitted with 4-inch cylinders, the plungers in which have a stroke of 6 inches. These pumps are designed for a pressure of 100 pounds per square inch and a speed of 47.3 revolutions per minute, the speed of the gas engine being 280 revolutions. This pump is of interest, as it indicates the possibility of pumping with gas or gasoline engines in isolated places where electric power is not available or is too expensive, and where the amount or continuity of the service does not warrant the installation

a mortar with silica brick, for which purposes it is well adapted, due to its plasticity and refractory properties.

A Large Pulley Order Quickly Executed.

It gives a sense of security and satisfaction to those in responsible charge of machinery when they hear of instances where urgent orders have been executed in remarkably short time. Such a one is that recently reported from the Reeves Pulley Company, Columbus, Ind.

On October 6 a massive cast iron main drive pulley in the plant of the Lafayette Box Board & Paper Company,

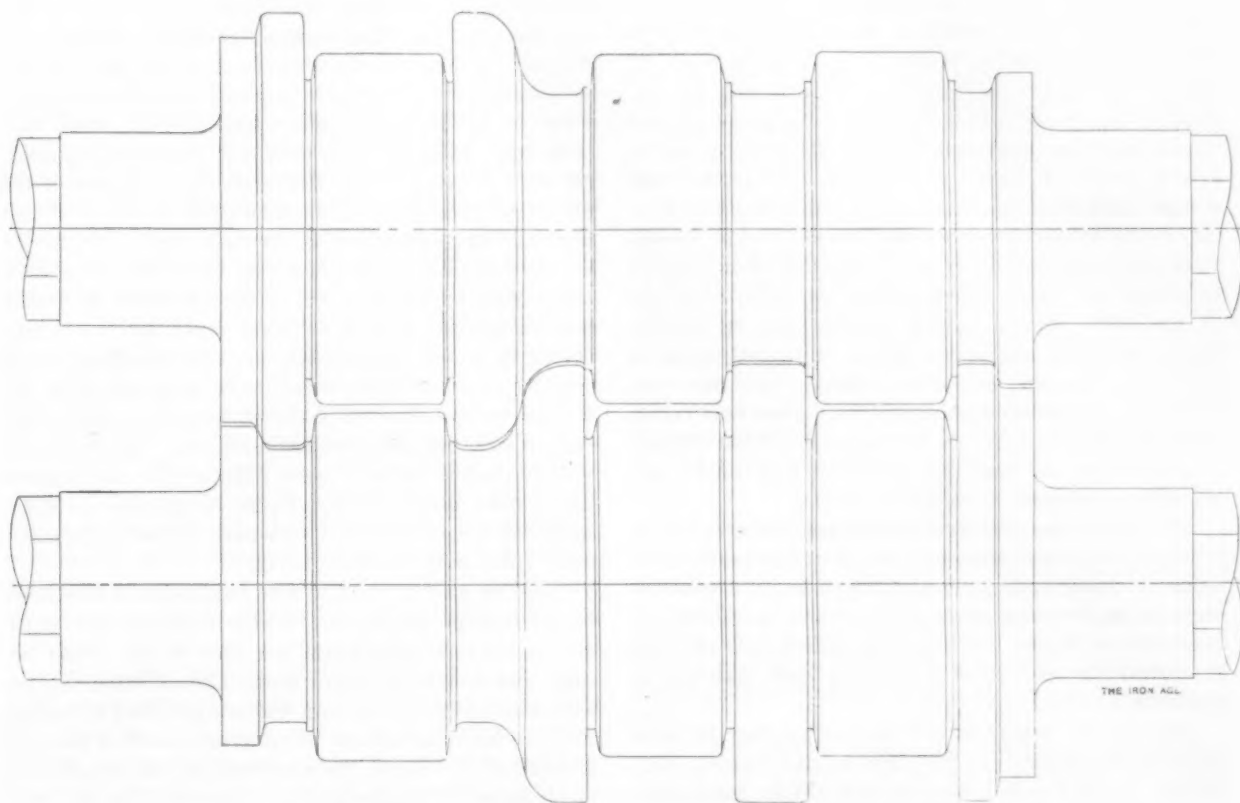


Fig. 7.—Rolling Beams in a Rail Mill.—Scale, $\frac{3}{4}$ Inch to 1 Foot

of steam pumping apparatus. This type of pumping equipment seems well adapted for all places where the service is intermittent.

Dixonite.—A new fire resisting material, known as Dixonite, has been brought out by Robert Dixon & Co., 308 Frick Building, Pittsburgh, Pa. It is intended for the lining of furnaces, soaking pits, &c., subject to intense heat, but not for use where it will come in direct contact with molten metal. It is not a fire clay, but is a plastic silica which mixes readily with water and can be used as a mortar for laying silica and fire brick and patching broken places in furnace linings. Its analysis is as follows: Silica, 91.05 per cent.; alumina, 7.76 per cent.; oxide of iron, 0.42 per cent., and lime, 0.34 per cent. It is a material which will stand intense heat, but it is claimed that it will not shrink or expand as much as fire bricks or silica bricks. It is recommended that it be used where possible in the form of blocks, as this gives the best results. Although somewhat higher in price than fire clay, the addition in expense is said to be offset by the saving effected in time and labor. Enough plasticity results from the alumina contents to make it possible to use it in a soft condition in repair work, when it may be rammed into position like concrete. It is stated that at the Granite City Steel Works of the National Enameling & Stamping Company whole arches and side walls in soaking pits have been rammed up with Dixonite and have outlasted three repairs of adjoining pits built in the usual manner with fire bricks. Dixonite is also used as a binder for silica sand in steel foundries and as

Lafayette, Ind., went to pieces. This wheel was 112 inches in diameter, 37 inches wide and was required to transmit 600 horse-power. Appreciating that it would be many days before it could be replaced with an iron pulley, the workmen were sent home and a 30-day shutdown was announced. Later in the day President Bauer of the Lafayette Company communicated by telephone with the Reeves Pulley Company concerning the difficulty, and was assured that a wooden pulley of the size designated and absolutely guaranteed to carry the load could be furnished. The order was placed and work was commenced on the pulley the next morning at 7 o'clock, and within 18 working hours it was completed and *en route* to its destination, being accompanied by W. S. Jones, superintendent of the Reeves Company. It was taken by the Pennsylvania midnight express on the 8th to Indianapolis, where the Chicago fast express of the Big Four was held one hour in order that the pulley might be transferred, and arrived at Lafayette at 3 o'clock the following morning. Here it was met by a corps of workmen and Superintendent Wilson of the paper company and was transferred to the plant. Under the direction of Superintendent Jones the installation was completed that afternoon, and on the 10th at 6 o'clock the big mill started as usual.

The Wellman-Seaver-Morgan Company, engineer and manufacturer, with general offices at Cleveland, Ohio, and plants at Cleveland and Akron, Ohio, announces that on October 1 it opened a New York office at 42 Broadway. Geo. B. Damon, who is a well-known and able engineer, has been appointed New York manager.

The Iron Age

New York, Thursday, October 20, 1904.

DAVID WILLIAMS COMPANY, - - - - - PUBLISHERS.
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RICHARD R. WILLIAMS, - - - - - HARDWARE EDITOR.

The Rivals in the Contest for Supremacy in the Iron Trade.

For a number of weeks we have published full abstracts of an interesting review of the relative power of the contestants for supremacy in the iron and steel industry of the world. It is the result of a prolonged and careful study by a French engineer, E. de Billy, and a French banker, J. Millus, who have brought to that task unusual abilities and an open mind. They are free from that patriotic bias which we fear few can escape wholly. They are not prompted by motives, highly commendable in themselves, which aim to arouse the industry of one or the other country to the dangers, real or fancied, which beset the land of the writer or the critic, be he American, German or Briton. Much that has been printed on the different phases of the contest now raging between the United States, Germany and Great Britain is more or less partisan, and some of it is distinctly sensational, deliberately so, to attain an end.

The frank expressions of opinion by men who are intelligent and expert observers are therefore particularly valuable. Messrs. de Billy and Millus weigh dispassionately the good and the weak points of each contestant, and reach the conclusion that they are quite evenly matched in neutral markets, which is probably more than will be generally admitted.

Yet we can hardly escape the feeling that in these broad generalizations one important point is usually overlooked, and that is that there are selected for comparison the picked representatives of each country. It is a fact, however, that a large percentage of the tonnage of the three leading rivals is made by districts and by works which fall far below the standard of the best. Yet the consumer can only cover his requirements by bidding prices which keep alive these laggards in progress or he will not bring out the tonnage. In other words, it is the general average, not the status of the leaders, which shapes values and determines make. Of course, ultimately that average must come up to the standard of the best, but in a comparison between the industrial greatness and supremacy of one country with another the rate at which the laggards struggle into line is an important consideration.

It is in this respect that Germany and the United States have during the past decade shown to best advantage, while Great Britain has, on the whole, suffered most. We may recognize the inherent power of the Cleveland district, but in equipment it does not compare well with the Lorraine district of Germany or the lake shores of our own country, and it is certain that it does not possess the same capacity for expansion.

We fail to observe, also, in the memoir under review, as emphatic a recognition of one fundamental fact, so far as the future of the iron industry of different countries is concerned—and that is the growing independence of fuel supplies. Every year which witnesses economies in the consumption of fuel improves the position of those districts and of those countries which are unfavorably situated as to metallurgical coal. Once the determining

factor in the assembling of materials, the location as to fuel supply becomes less a consideration, and we observe the shifting from the coal field to the ore or to the market or to tidewater, if the ore is ocean borne and the product seeks customers over the seas.

The Problem of Placing Unemployed Immigrants.

The Civic Service House of Boston, a "settlement" in the north end of that city, has begun the work of placing unemployed immigrants in country neighborhoods where work is found for them. The method adopted is to discuss the problems of the unemployed with the unemployed themselves, Sunday night meetings being held at the settlement house, which is situated in a neighborhood where many immigrants make their homes. More than 50 such people gather each week and discuss among themselves and with a leader, Philip Davis, the causes of the difficulties that confront the immigrant upon his arrival in this country and how to overcome them. Mr. Davis has specialized along this line. He knows his people and, better still, he knows where in New England they may best be placed. It is a practical work, for it has succeeded in getting many newly arrived foreigners out of Boston, who otherwise would have been added to the masses which cause the state of congestion that is becoming more and more serious each year. Mr. Davis has visited various parts of New England and has learned where farm help is needed, where employment in shops and mills may be obtained, especially in the country and away from even the larger towns.

Any one who is familiar with conditions of foreigners in the country and in the cities will realize how much more wholesome and useful the lives of the former become and how much better their children learn the lessons of American citizenship and are prepared to become first-rate men and women, to the great benefit of the next generation. Of course, the work done by the organization above named is infinitesimal as compared with the enormous total of need of such work. Yet it is useful in a wider sense—namely, that the work actually accomplished is pointing a way that others may follow. The greater part of the new immigration consists of people whose knowledge of America does not extend beyond New York, Boston or some other center of population, the name of which they learn from the agents on the other side of the water. They like the life of the city and hope for success in earning a living there. Very many such people were bred on farms and have back of them nothing but the traditions of Old World husbandry. As a result they have nothing to offer to a city employer but brute strength, while in the country they would be useful citizens. Another class of immigrants comes from a race of factory or mill workmen, and they do not know that the larger cities have such labor in excess of the demand for it. Many would never leave the city were they bribed to do so. But very many others would, if they knew the chance that offered them where men are scarce. The question is too broad to be treated provincially. The East, country or city, should not stop the immigrant. He should be taught to keep on West, where thousands of his fellows are making a comfortable living, many of them already land owners and on the road to affluence.

Statisticians have sharpened their pencils and set themselves to making estimates of the value of this year's crops of cereals, cotton and hay. It is a fascinating subject, dealing with large quantities. Taking recently ruling prices, figures have been evolved which are simply

staggering. The assertion is made, on quite reputable authority, that the value of these crops may reach no less a sum than \$3,000,000,000. In 1903, it is estimated, such crops were worth \$2,755,000,000, and in 1902 their value was \$2,784,000,000. It is regarded as absolutely certain that their value this year will be the largest in the history of the country. The latest crops are maturing under very favorable weather conditions, making the production fully as heavy as had been predicted when the last Government report was issued. This means a successful agricultural year, which almost invariably brings a year of general prosperity.

International Postage.

It is quite probable that the next congress of the Universal Postal Union, to be held in Rome in April, 1905, will bring about a reduction in foreign letter postage, either in the form of a lower rate per $\frac{1}{2}$ ounce or, which is said to be fully as likely, a continuation of the present minimum letter postage, but an increase in the weight of a letter that may be carried for 5 cents. If the latter course is pursued the $\frac{1}{2}$ ounce will be increased to a $\frac{3}{4}$ -ounce limit, or possibly to a full ounce, which is the basis of first-class postage in the United States. If the rate is decreased and the $\frac{1}{2}$ -ounce limit retained there is no hope of a 2-cent rate, so the postal authorities at Washington are quoted as saying. Three cents is as low a rate as will be considered, and 4 cents is possible. Whichever change is made American business houses will keenly appreciate the decrease in the cost of postage, for with increasing foreign business and increasing effort to procure it correspondence with other countries has increased prodigiously, so that the annual item of postage becomes quite a formidable one.

Perhaps the increase in the permitted weight of a letter would prove as much of a saving to business men as a decrease of the rate from 5 to 4 or even 3 cents, because foreign letters are apt to be long ones, and also frequently contain price-lists and advertising matter to bring the weight up to more than $\frac{1}{2}$ ounce, so that 10 cents is required. A $\frac{3}{4}$ -ounce limit would save a great deal of such double postage and a full ounce would save much more. The letter rate has been more of a burden since business houses have been sealing their circular advertising, on the theory that unsealed envelopes usually find their way into waste baskets without being opened. To seal an envelope containing printed matter means the difference between 5 cents for $\frac{1}{2}$ ounce and 1 cent for 2 ounces. In other words, it multiplies the cost by 20. This cheaper postage covers about everything included in the second, third and fourth classes of the American domestic postal service, excepting only legal documents, which go abroad for 5 cents for 10 ounces or less; and also samples of merchandise, which require 2 cents for 4 ounces.

It has not been hinted that action is to be taken toward changing rates other than that on first-class matter, though changes may be made, of course. It has been suggested, however, that an international parcels post be established, containing something of the same features as those embodied in the parcels post bill that came before the last Congress. This would probably meet with strong protest from American manufacturers and merchants, because it would give foreign competitors a powerful advantage in enabling them to mail packages of goods up to a considerable weight to all parts of the United States at rates considerably cheaper than Americans could themselves send them.

CORRESPONDENCE.

Blast Wandering in Furnaces.

To the Editor: I have read with interest Mr. Witherbee's article, "Blast Wandering in Furnaces," in *The Iron Age* of September 22, and also Mr. Patterson's article, "A New Arrangement for a Furnace Bell and Hopper," in *The Iron Age* of October 6. I agree with both writers in thinking that the great waste of fuel and the unsatisfactory working of many of our furnaces are due to the "wandering of the blast," but I do not think the remedy for this fault will be found in the charging device or the method of filling the furnace. As long as furnaces are blown through a number of tuyeres, fed from a common main or bustle pipe, the tuyeres offering the least resistance will take the larger volume of blast, and the stock above these tuyeres will descend more rapidly than it does over the tuyeres taking the smaller volume of blast. This in itself would cause a charge of stock, no matter how correctly charged, to come down irregularly.

To overcome this serious fault of blast wandering in furnaces I would suggest that each tuyere receive its blast from an independent cylinder, and that each tuyere be given exactly the same volume of blast. To blow a furnace in this way the use of fire brick stoves would be impracticable, but the Durham stove could be easily adapted to this use. From my experience I have learned that 900 or 1000 degrees of heat in the blast is sufficient for good work. This temperature can easily be carried by Durham stoves.

H. B. WEAVER.

TROY, N. Y., October 15, 1904.

Rolling Mill Records on Ten-Inch Mills.

To the Editor: In a recent issue of your paper you announce that the 10-inch rolling mill of the National Rolling Mill Company, Vincennes, Ind., charged 118,450 pounds of iron on the day turn and finished 100,050 pounds, and on the night turn charged 120,200 pounds and finished 100,155 pounds, beating the record for 24 hours' work.

The Kansas City Bolt & Nut Company's 10-inch train beat this record on 24 hours' work on October 11, charging on both turns 253,429 pounds and finishing 235,481 pounds after the crop ends of 2445 pounds had been deducted. This output of the little Kansas City mill beats not only the mill you refer to, but beats any other record that I have ever observed, either in this country or any other country.

J. H. STERNBERGH,

President Kansas City Bolt & Nut Company.

READING, PA., October 17, 1904.

A Large Water Wheel Turbine Contract.

The Wellman-Seaver-Morgan Company, Cleveland, Ohio, has been awarded by the Board of Trustees of the Sanitary District of Chicago the contract for the turbine water wheel equipment for the new power house of the Chicago Drainage Canal. The contract was awarded after a competition participated in by the most noted European and American builders of water wheels.

This is the second largest installation of water power equipment contracted for in the United States; the largest single water power equipment previously contracted for being the one also built by the Wellman-Seaver-Morgan Company at Sault Ste. Marie, Mich., for the mammoth power house of the Lake Superior Power Company.

The Chicago Drainage Canal power station, which is to be located near Joliet, will be the most complete and up to date plant in the United States and a model of its kind in every detail. The equipment will comprise four 6000-horse-power units of turbine wheels, which will be direct connected to electric generators. There are also two exciter units of 600 horse-power each. The contract will require about one year for completion.

A French View of the English Iron Industry.—V.*

Conclusions.

In the preceding chapters the fact has been shown that, so far as the manufacture of pig iron is concerned, America, Germany and England are operating under conditions as to costs of production which are nearly identical. The powerful equipment of the American plants compensates for high labor and long distance transportation. In Germany and England, where the rate of production of the furnaces is less intense, there are advantages from the point of view of raw materials. The facts may be summarized by the statement that in the three countries named modern plants owning their own mines can produce pig iron for steel manufacture at an average of 50 francs per ton. Making a comparison between England and Germany we find that, equipment being the same, Cleveland should, so far as export iron is concerned, have the advantage over Lorraine and Westphalia.

It is in following the operations of converting the pig iron and in studying the manufacture of crude steel and of rolled products that we arrive at very different conclusions. It is here that the plant, and sometimes and in certain branches cost of fuel and of labor, play an important part. So far as intermediate products and the greater part of merchant products are concerned the United States, owing to its equipment, possesses an undoubted superiority even over Germany. But (no account being taken of fixed charges on capital, which weigh so heavily on the Corporation) if there be added to the costs at mines and works the transportation to the coast and ocean freights to Atlantic and North Sea ports, then a total is reached which is little higher than the cost of corresponding products in Lorraine or in Westphalia delivered to the same ports. It is only in the case of plates, which require so much labor, that America loses the greater part of her advantages.

If Germany is compared with England, there is shown even more strikingly the effects of equipment and of provision for raw materials. Great Britain is the country of coal. It is there that her great power lies and that is the basis of her industries. Though less well provided with ore than Lorraine, Great Britain, thanks to her maritime situation, is as well favored as Westphalia, but she has not known, like Germany, to group her metallurgical production in a relatively small number of very powerful works, well equipped and provided for all degrees of manufacture, from the ore up to the most varied products of the forge or the mill. The consequence is that while costs of production declined from 1893 to 1903 in Germany, and very notably so in the United States, they rose in Great Britain as the result of the demands of labor and of the rise in raw materials, which were not compensated for by concentration in manufacture and incessant improvements in equipment. It is only in two branches of manufacture that Great Britain has retained her own old advantages, thanks to the specialization at certain works, to the drift of her labor population, to her outlets for products, and, so far as one is concerned, to the low price of fuel. These two products are the hard Bessemer steel rail industry and the plate and sheet trade. We have noted that the greater number of the plate and sheet mills isolated from the pig iron manufacturers, or poorly provided for, have found it more advantageous at recent prices to purchase bars or slabs of foreign make. The profit of a part of the metallurgical operations, therefore, in this method of manufacture escapes from English industry. It may be expected, it is true, that if the Welsh and the Cleveland districts continue to pursue the policy in which they are now engaged we shall see the English iron industry modify methods, and improve them within the near future.

The study of the conditions, so far as they affect the production of iron and steel, therefore leads to the conclusion that the United States cannot profitably import

into Europe except as a matter of expediency at times of an intense crisis. However, in all the other markets they are able, unless their own consumption absorbs all of the output, to become very formidable competitors of the European producers. Great Britain retains, so far as exports are concerned, a favored position in the sheet and plate trade, and a certain advantage in pig iron and in rails. In other finished products and in semiproducts she finds it difficult to struggle against competition. She will succeed only by radically modifying her industrial organization and her equipment. This transformation seems to be well in hand in Cleveland and in Wales. In Cumberland it will be necessary to modify the tariffs on the transportation of coke. In Scotland, where the conditions as to supply are inferior, the question may arise whether so radical a transformation is worth undertaking and whether this district is not destined to see its outlets restricted more and more to the home market.

Germany, finally, well supplied with materials and with a superior equipment, has found it possible to successfully undertake all lines of manufacture for export. Nothing prevents that even with the development of her shipbuilding and her colonial outlets she will find it possible to rival England in the manufacture of plates. These conclusions, it will be observed, agree with those which have grown out of the study of the statistics.

But the success of an industry does not alone depend upon cost of manufacture. It is necessary to consider the outlets, the conditions as to transportation and the commercial facilities. It is here that circumstances appear peculiarly favorable to the United States and to England. The latter country has the first position in the world in shipbuilding. Her commerce extends over the globe, and her colonies, which are attached to her by the bonds of race and of language, constitute admirable customers. The United States has not yet a merchant marine and it will require time before a really powerful marine is created, but in certain markets she has a preponderating influence. For Canada she is a dangerous rival of Great Britain, and in the south, as the result of their railroads, she penetrates Mexico and Central America and furnishes them with her products, waiting until she succeeds in extending her influence into South America and the extreme Orient. From this point of view Germany is less favored. She has made admirable efforts, crowned with success, for developing her commerce and her shipbuilding, but the basis is less solid. Although she has in Europe been able to take the place of England as an exporter of metallurgical products, she has had to deal with countries who themselves are producers and who protect themselves by tariffs.

Another circumstance whose influence is great grows out of the fiscal policy of the great producing countries. England has free trade. The United States and Germany have tariff barriers, and since in these two countries the production is regulated by trusts or by associations with the tacit assent of the Government, the prices are maintained for the home markets at a level which is quite considerably higher than that prevailing in England. The result is that even at equal cost of production the German iron industry, which produces and exports nearly as much as Great Britain, makes much larger profits than the English iron industry. America, which produces very much more, exports almost nothing. Germany and the United States, therefore, have an advantage over England of very much larger profits, which they can utilize in part to improve their equipment and to carry out further betterments. The German industrial leaders, with the spirit of co-operation which characterizes them, have organized this advantage. The syndicates give export premiums under the form of a drawback on the price of fuel or of raw materials on such manufactured products as are to be exported. These drawbacks are at the present time 1.50 marks on coal, 2 marks on coke, 2.50 marks on pig iron and 15 marks on semiproducts.

Such are, in brief, some of the conditions which must influence the struggle in which these three great rivals are now engaged in the markets of the world. Let us examine what must be the policy of each of them under present conditions.

* Continued from *The Iron Age*, September 1, page 21; September 8, page 14; September 15, page 29; September 22, page 20, and October 6, page 38.

The United States.

The United States, agitated by an excessive fever of speculation, has not found it possible to organize clearly a rapid and well considered campaign for the conquest of foreign markets, as Germany has done. There has been a good deal of talk, and the United States Steel Corporation has even organized a special company for export. Finally, and in spite of favorable conditions, little has been done. Has the Steel Corporation taken the advice of Mr. Carnegie, who, in a famous speech, stated that he cared very little for the foreign markets, and that he desired only the command in the home market? Have the Americans an unshakable confidence in the development and the power of absorption of their own country? It is certain that in the last crisis the Corporation and the independent producers have not hesitated to reduce their production by one-half temporarily, and that the shipments of semi-products to England and the sales of rails for export represent only a relatively moderate quantity. It is true, nevertheless, that America always is a source of grave anxiety for Europe. The day on which that country decides to make a vigorous effort for export her natural conditions and the enormous tonnage of her production will permit her to compete severely in all countries outside of Europe with Great Britain and with Germany.

England.

England is hesitating. Her metallurgical industries are suffering. She sees the advantages which her rivals draw from their tariffs, and she asks herself whether she should not imitate them. There is no doubt that a tariff, if applied without leading to reprisals hurtful to the general commerce of Great Britain and within such bounds that a rise in prices would be accepted by the English consumer, would secure to the ironmasters of this country the means of making a larger profit on the home market and thus obtain the resources to improve their equipment. But, so far as exports are concerned, we believe that we can affirm that all tariffs would not be worth the persistent and determined work of carrying out the improvements in the equipment which have been undertaken in Cleveland and in Wales.

Germany.

Germany has remained true to her traditions and is carrying out to the last consequences the principles to which she attributes her success. Without stopping in the work of improving her equipment, of concentrating her manufacture and doubling her efforts for a merchant marine, she has realized that in order to struggle with England, now working in the direction of progress, and more particularly with the formidable American Steel Corporation, she must oppose an industry organized to regulate production, sale and exports in one unit energetically and capably managed. Because her associations have succeeded she has undertaken with a remarkable determination the conversion of the different iron pools in the Stahlwerksverband. It is in close harmony with the coal syndicate, recently renewed. Although the situation of the German Steel Syndicate is only provisional and is limited to December 31, 1906, everything leads to the expectation that it will be extended until 1912, as is now provided for.

The German Syndicate, as we have stated, includes only so far pig iron, crude iron and steel rails, beams and shapes. But the pool allotments have been arranged for taking account of the output of plates and sheets, wire, springs, tires, &c. These are left still to independent syndicates and limit their freedom of action so far as these products are concerned. The ground is therefore already prepared for their final absorption into the present trust. There is no other way of speaking of this new organization, for, while it leaves to the syndicate members their financial independence and full liberty to improve their equipment, it regulates their output, their sales, their exports, and, as a matter of principle, denies the right to purchase new collieries. By the authority to exchange pool participation in different products within the total tonnage participation it favors the concentration of different lines of manufacture in the best equipped plants among each of them. It will be understood how

formidable an instrument for export so powerful, so homogeneous and active an organization places in the hands of the German industry. It is stripped of all speculative tendencies and its sole object is to pursue its industrial aim. Germany has already secured the co-operation of the Belgian mills who desire to work in harmony with such a rival and who have organized themselves into a syndicate on similar lines. It has even incited the French works to rally along the lines of a general understanding. The question may be asked whether Great Britain will not finally enter into this industrial agreement in favor of or in spite of her fiscal plans, or will Great Britain remain in her traditional isolation, confident in her efforts, in her power, and in the custom of her colonies? The near future will certainly teach us that.

Progress Report on the Panama Canal.

WASHINGTON, D. C., October 18, 1904.—The Panama Canal Commission, which recently returned from the isthmus, has decided to defer a settlement of the important question as to whether the canal is to be built by contract or by day's work, under Government supervision, until a sufficient amount of work has been performed under the commission's engineers to form the basis of an accurate estimate of the cost of excavating and other engineering operations. The question will probably not be settled before next March.

Admiral Walker, chairman of the commission, has prepared a memorandum giving the present status of the work on the canal and the plans thus far made for its prosecution. A portion of this memorandum, which will be of interest to manufacturers and contractors who are following these developments, is appended:

We have now between 200 and 300 engineers and others sent down from the United States engaged in the engineering and construction work and upon sewerage and water supply, with a force of from 1000 to 1200 laborers, &c. This does not include the sanitary force nor the force of the Governor of the zone, or the material and supply department.

An engineering force in charge of sewerage and water supply for Panama and Colon is now constructing a reservoir to the valley of the Upper Rio Grande, which will furnish a minimum supply of 2,000,000 gallons a day for the city of Panama; also a distributing reservoir for the city of Panama at Ancon; also making surveys, plans and estimates for a sewerage system for the city of Colon, and surveys and estimates for establishing official grades for the streets of Panama.

Plans are being prepared for the construction of a harbor at Colon, for which tenders will be asked early in December. Plans are also being prepared for the construction of wharves and docks at Colon, and necessary warehouses, to handle and protect the material which will be shipped to the isthmus.

The average amount of material taken out of the Culebra cut has been from 1000 to 1500 cubic yards a day, and, when everything favors, at times 2000 cubic yards; that is with the use of the old French machinery that is available. We have bought three modern steam shovels—one that has gone down to the isthmus, and two others that will follow shortly, for use in the Culebra cut. They will increase the output fivefold. We have also opened bids for 11 more steam shovels.

A machinery department has been organized, and the old shops of the French company are being put in repair and operation, and the old machinery supplemented by new and modern machinery, in order that the repairs to cars and equipment may be properly taken care of. A building department has also been organized, under a supervising architect, who has charge of repairing the existing buildings, of which there are 200 along the line of the canal—warehouses, storehouses, barracks, &c.—and planning and superintending the construction of such additional buildings as may be necessary.

When we took over the work the French were removing about 25,000 cubic yards a month. We removed in August about 37,000 yards, but in September a smaller amount, because the weather was bad and there were some bad slides, which broke up some of the excavators. We cut the unit cost of excavating material in July to 60½ cents per cubic yard; in August to 50½ cents per cubic yard. During the time Major Black was in charge there the French cost was 79 cents per cubic yard. One month we cut the cost down to 45 cents, but that was due to there being no rock excavation. W. L. C.

The American Steel & Wire Company is building, and will complete about November 1, a large warehouse at Louisville, Ky., which has a ground area of 150 x 600 feet. The warehouse has the advantage of both rail and river shipment and will be used by the company for the convenience of its patrons in territory tributary to the Ohio and lower Mississippi rivers.

Lake Iron Matters.

Reports of Mine Inspectors.

DULUTH, MINN., October 15, 1904.—The various mine inspectors of Michigan counties have made their annual reports. These all show a decided falling off in the number of men employed and in output, so far as iron ore counties are concerned, and a great increase in the copper region. Iron County shows a decline from 1450 to 863 men, and of production for the fiscal year from 1,330,000 to 803,000 tons. Marquette has decreased about as much; Dickinson a little less. In the three the total employed now number about 8000 men. The average fatal accidents for the year have been at the rate of 11 to the 1000 men. Houghton County, on the other hand, shows employment in mines during the year for 14,321 men, with 45 fatalities, or 3 plus to the 1000. More men are employed in these copper mines than in any preceding year, and twice the enrollment of ten years ago. Mines of Keweenaw County have not so large a force as last year, and are a small proportion of the whole. In this county few mines have shown a right to exist, and the general result of work there has been very unsatisfactory.

The Ore Movement.

The anxiety to carry forward as much iron ore as possible continues. Vessels are doing well, the ore rate has been advanced 5 cents, and the grain rate from the head of the lakes to Buffalo is now equivalent to 90 cents on ore, and a large amount of business is current. The number of new ships under contract for the coming year is increasing with surprising rapidity, but in line with what was said in this correspondence some three weeks ago. At that time guarded mention was made of the probability of a number of large ships, probably four, being contracted for by the United States Steel Corporation, all to be of the 10,000-ton type with hopper cargo holds. No announcement has yet been made, but it is expected that the decision of the corporation will be given in a few days. G. A. Tomlinson of Duluth, who has announced his orders for three 8000 to 10,000 ton ships, will probably make statement of contracts for two more very shortly, giving him five under way and eight afloat. The new Great Lake Engineering Company, Detroit, is full of ship orders, and can take no more, and most of the yards of the American Shipbuilding Company will be chock up for the winter season. In all not less than 40,000 tons of steel will be required for the ships to be built the coming winter, and these vessels will probably add 2,500,000 gross tons to seasonal capacity of lake ore fleets. A man can but wonder what is to be done with all this tonnage if the coming season is of reasonable duration and continuity. A feature of contracting this fall is that ore concerns like the Cleveland Cliffs Iron Company, the Buffalo & Susquehanna Iron Company, Pickands, Mather & Co., and others of like character, are buying ships. Every order from this sort of buyer restricts the market for the independent shipowner, and the time must be rapidly approaching when a shipowner without mines or other sources of tonnage under his control or operated by associated interests will be as helpless as an independent Mesaba range railroad would be to-day. It is a fact that some of the larger owners of tonnage see this and are arranging to meet the conditions. Even with its probable additional vessel capacity the Steel Corporation will still be the main reliance for independent shipowners, and if it is logical for the corporation to add four ships it is equally as logical for it to add several times as many, and then be considerably below its maximum requirements. Developments along these lines will be watched with much interest by those interested in the evolution of lake shipping.

Furnace News.

It has been stated in many newspapers that the Cleveland Cliffs Iron Company was to remove its Gladstone charcoal furnace to Munising, where it is heavily interested. The company informs me that no decision has been reached in this matter; but it is quite probable that the furnace and its carbonizing and by-product plants may go to Munising.

The old St. Ignace charcoal furnace is now being re-erected at Boyne City, where there is abundance of hard wood for an indefinite period. This plant will be ready for operation next year, and will have a capacity for 100 tons of iron daily. It is to be the largest and best equipped plant in the lower peninsula of Michigan. Fred Smith, formerly in charge of the Carp furnace at Marquette, is manager.

The new furnaces of the Lake Superior Company at the Sault are to be blown in during November, and should make from 275 to 300 tons of iron daily. They will use a small amount of Michipicoten ore, getting the bulk of their mixture from Negaunee and Mesaba mines. The company's steel rail mill is now running steadily on imported pig iron, and is making an average of 500 tons of 80-pound rails daily. These are said to be good rails, and as the company's specifications for iron are quite severe there is no reason why they should not be. When these works ran short time, two years ago, they used some non-Bessemer pig and made a rail that was not up to standard. This company is gradually getting its re-organization working force complete and is wheeling its industries into line. It has no present idea of any attempt to erect coke ovens at the Sault, but will utilize its own charcoal to as large an extent as practicable. A. B. Willmott, who had charge of the company's mining department and explorations under the old régime, has returned to his former place, and active exploration may be expected later, where indications are favorable, through the Canadian side of the Lake Superior region. Mr. Willmott recently stated that in all the various Ontario iron formations, in all the years that exploration had been carried on there, the work done has been trifling in comparison with that in the 25 miles of the Vermillion range between Tower and Ely, and this is undoubtedly true. It is also true that, though politicians and others in Canada have assured the public there are large deposits of iron ore in both Ontario and Quebec, these deposits have not been found, and may not exist. But the probabilities are that, with systematic and detailed exploration on a large scale, ores may be found in any or all of the several ranges. Half a dozen districts in which the iron bearing rocks have been mapped skirt the Canadian shores of Lake Superior, and the Hutton, Temagami and Eastern Ontario districts lie further to the eastward.

D. E. W.

The Continental Railway Equipment Company.

This company announces that it has purchased and taken over the business of the Commercial Railway Equipment Company. In addition to securing through this purchase the control of the Blanchite Process Paint Company, manufacturer of Blanchite paint, and the Tide-water Oil Company, manufacturer of Cerlon paint, the company also becomes possessed of \$1,850,000 out of a total issue of \$2,000,000 of the stock of the Richmond Standard Steel Spike & Iron Company, Richmond, Va., which has been in operation for five years. It, however, assumes no responsibility or obligations of the last named company. The stock is merely an asset of this company. The several factories are located at New York City, Bergen Point, N. J., and Richmond, Va. The company also has the exclusive agencies heretofore held by the Commercial Railway Equipment Company, Indiana Road Machine Company, Erie Machine Shops, Cook Mfg. Company, Stroudsberg Engine Works, and acts as sales agents for the Garry Iron & Steel Company, Schonthal Iron & Steel Company, Atlas Car & Mfg. Company, Georgia Car Company, &c. F. C. Hollins is president; F. J. F. Thiel, secretary and treasurer, and Geo. H. Hewes, general manager, 42 Broad street, New York City.

The stockholders of the New York Shipbuilding Company, at their annual meeting in Camden, October 11, elected these officers: President, Decourcy May; vice-president and general manager, Charles S. Hall; secretary and treasurer, Samuel N. Knox. The old directors were re-elected. The company issued no financial statement.

St. Louis World's Fair Awards.

List of Prizes in Machinery, Mines and Metallurgy.

(By Telegraph.)

St. Louis, Mo., October 18, 1904.—The Superior Jury on Awards at the Louisiana Purchase Exposition, St. Louis, has made final awards on exhibits in most departments at the Fair. There are, however, some departments in which, because of the large number of exhibits to be passed upon, the work of judging has been delayed, and there yet have to be made appeals to the Superior Jury by the department jurors of such buildings before prizes are awarded. This is notably true of the Varied Industries and Manufactures Buildings. The work of judging consumed about six weeks, and was performed by group jurors, who made their recommendations to the Superior Jury. In the Machinery and Mines and Metallurgy buildings the work is completed, and below is given a list of exhibitors to whom grand prizes and gold medals were awarded, omitting those in whom the readers of *The Iron Age* are not specially interested:

The awards in the Varied Industries Building, which includes hardware, will not be available until Wednesday afternoon, as many awards have yet to be submitted to the Superior Jury.

MACHINERY BUILDING.

Grand Prizes, United States.

Alberger Condenser Company, New York.
 Allis-Chalmers Company, Chicago.
 American Meter Company, New York.
 Ashcroft Mfg. Company, New York.
 Aultman & Taylor Machinery Company, Mansfield, Ohio.
 E. W. Bliss Company, Brooklyn, N. Y.
 Brown Hoisting Machinery Company, Cleveland, Ohio.
 Brown & Sharpe Mfg. Company, Providence, R. I.
 Coe Mfg. Company, Painesville, Ohio.
 Continental Iron Works, Brooklyn, N. Y.
 Crosby Steam Gage & Valve Company, Boston, Mass.
 Abner Doble Company, San Francisco, Cal.
 Estate of W. S. Doig, Brooklyn, N. Y.
 General Electric Company, Schenectady, N. Y.
 Gisholt Machine Company, Madison, Wis.
 Goldschmidt Thermo Company, New York.
 R. Hoe & Co., New York.
 E. & B. Holmes Machinery Company, Buffalo, N. Y.
 Laidlaw-Dunn-Gordon Company, Cincinnati, Ohio.
 A. Leschen & Sons Rope Company, St. Louis, Mo.
 Lidgerwood Mfg. Company, New York.
 Niles-Bement-Pond Company, New York.
 Norton Grinding Company, Worcester, Mass.
 Otis Elevator Company, New York.
 Pawling & Harnischfeger, Milwaukee, Wis.
 Pratt & Whitney Company, Hartford, Conn.
 Robins Conveying Belt Company, New York.
 Schaeffer & Budenberg Mfg. Company, Brooklyn, N. Y.
 William Sellers & Co., Incorporated, Philadelphia, Pa.
 Shaw Electric Crane Company, Muskegon, Mich.
 Sloan & Chace Mfg. Company, Newark, N. J.
 Warner & Swasey Company, Cleveland, Ohio.
 Westinghouse Machine Company, Pittsburgh, Pa.
 R. D. Wood & Co., Philadelphia, Pa.
 Henry R. Worthington, New York.

Grand Prizes, France.

Association Francaise de Proprietaires d'Appareils a Vapeur, Paris.
 Compagnie pour la Fabrication des Compteurs et Materiel d'usines a gaz, Paris.
 Frederic Fouche, Paris.
 Savy Jeanjean & Co., Paris.

Grand Prizes, Germany.

Elsaessische Maschinenbau-Gesellschaft, Muelhausen.
 Orivit Works, Coeln.
 Schaeffer & Budenberg, G. M. B. H., Magdeburg-Buckau.

Grand Prizes, Great Britain.

Davidson & Co., Limited, Belfast, Ireland.
 John Fowler & Co., Limited, Leeds, England.

Gold Medals, United States.

Acme Harvesting Machinery Company, Cleveland, Ohio.
 Alvey-Ferguson Company, Louisville, Ky.
 American Steam Gauge & Valve Mfg. Company, Boston, Mass.
 Armstrong Bros. Tool Company, Chicago.
 Ashton Valve Company, Boston, Mass.

Becker-Brainard Milling Mach. Company, Hyde Park, Mass.

Betts Machine Company, Wilmington, Del.
 Bignall & Keeler Mfg. Company, Edwardsville, Ill.
 Black Bros. Mfg. Company, Mendota, Ill.
 E. W. Bliss Company, Brooklyn, N. Y.
 Wm. T. Bonner Company, Boston.
 Hugo Bilgram, Philadelphia.
 Buckeye Engine Company, Salem, Ohio.
 Buffalo Forge Company, Buffalo, N. Y.
 Builders Iron Foundry, Providence, R. I.
 A. S. Cameron Steam Pump Company, New York.
 Carborundum Company, Niagara Falls, N. Y.
 Phillip Carey Mfg. Company, Lockland, Ohio.
 Chicago Pneumatic Tool Company, Chicago.
 Cleveland Automatic Machine Company, Cleveland, Ohio.

Consolidated Safety Valve Company, New York.
 Crane Company, Chicago.
 Dearborn Drug & Chemical Company, St. Louis.
 Dodge Mfg. Company, Mishawaka, Ind.
 Eureka Fire Hose Company, Jersey City, N. J.
 E. & T. Fairbanks Company, St. Johnsbury, Vt.
 Ferracute Machine Company, Bridgeton, N. J.
 Fisher Governor Company, Marshalltown, Iowa.
 Geiser Mfg. Company, Waynesborough, Pa.
 Goulds Mfg. Company, Seneca Falls, N. Y.
 Green Engineering Company, Chicago.
 Hancock Inspirator Company, New York.
 Harrisburg Foundry & Machine Works, Harrisburg, Pa.

Harrison Safety Boiler Works, Philadelphia.
 Hayden & Derby Mfg. Company, New York.
 Hall & Brown Wood Working Machinery Company, St. Louis.
 Heine Safety Boiler Company, St. Louis.
 Hendey Machine Company, Torrington, Conn.
 Hercules Gas Engine Works, Incorporated, San Francisco.

Hooven-Owens-Rentschler Company, Hamilton, Ohio.
 C. W. Hunt Company, New York.
 Jones & Lamson Machine Company, Springfield, Vt.
 Kieley & Mueller, New York.
 Lagonda Mfg. Company, Springfield, Ohio.
 Landis Tool Company, Waynesboro, Pa.
 Lombard Governor Company, Boston.
 Long & Allstatter Company, Hamilton, Ohio.
 Lunkenheimer Company, Cincinnati.
 Medart Patent Pulley Company, St. Louis.
 Aug. Mietz, New York.
 National-Acme Mfg. Company, Cleveland, Ohio.
 National Meter Company, New York.
 National Supply Company, Chicago.
 Norton Emery Wheel Company, Worcester, Mass.
 Otto Gas Engine Company, Philadelphia.
 Pittsburgh Meter Company, Pittsburgh.
 Pratt & Whitney Company, Hartford, Conn.
 Prentice Bros. Company, Worcester, Mass.
 Putnam Machine Company, Fitchburg, Mass.
 F. E. Reed Company, Worcester, Mass.
 Richardson Scale Company, New York.
 Rider-Ericsson Engine Company, New York.
 Wm. Sellers & Co., Inc., Philadelphia.
 Schultz Belting Company, St. Louis.
 H. B. Smith Machine Company, Smithville, N. J.
 L. S. Starrett Company, Athol, Mass.
 Stillwell-Bierce & Smith-Vaile Company, Dayton, Ohio.

Voorhees Rubber Mfg. Company, Boston, Mass.
 Weber Gas & Gasoline Engine Company, Kansas City, Mo.

Walworth Mfg. Company, Boston.
 J. H. Williams & Company, Brooklyn, N. Y.
 Williams, White & Co., Moline, Ill.
 Yale & Towne Mfg. Company, New York.

Gold Medals, Belgium.

Association des Industriels de Belgique, pour l'Etude et la Propaganda des Engins et des Mesures propres a Preserver les Couvriers des Accidents du Travail, Brussels.

Vertongen Goens Company, Limited, Tremonde.

Gold Medals, France.

A. Domage et Fils, Paris.
 Professor Ribourt, Le Besvinct.
 Charles Seblin, Paris.
 Societe De Laval, Paris.

Gold Medals, Germany.

H. Bieling, Iseltz-Berlin.
 Fredrich Dick, Esslingen a. Neckar.
 Dryer Rosenkrans & Droop, Hanover.
 Dusseldorf-Rattinger-Rohrenkesselfabrik, Ratingen.
 C. Otto Gehrckens, Hamburg.
 Fredrich Goetz, Burschied bei Coeln a. Rhein.
 Frederich Lux, Ludwigschafen, a. Rhein.

Gold Medal, Japan.

Shibuara Works of Mitsuishi & Co., Tokio.

Gold Medals, Mexico

Fabrica Nacional de Armas, Mexico, D. F.
Jeronimo Elizondo, Monterey, Nuevo Leon.

MINES AND METALLURGY.

The following is a complete list of grand prize and gold medal awards made to exhibitors in the Palace of Mines and Metallurgy:

United States, Grand Prizes, Group 115.

A. Leschen & Sons Rope Company, St. Louis, operating plant of wire rope tramway.
J. George Leyner Engineering Works Company, Denver, compressors, air drills and hoisting machinery.

United States, Gold Medals, Group 115.

Pittsburgh Coal Company, Pittsburgh, model of coal mine and surface plant.

General Electric Company, Schenectady, N. Y., electric mine locomotive.

Baldwin Locomotive Works, Philadelphia, electric mine locomotives.

De Laval Steam Turbine Company, Newark, N. J., steam turbine connected to centrifugal pumps.

William Ainsworth & Sons, Denver, assay and analytical balances.

Salt Lake Hardware Company, Salt Lake, Utah, analytical balances.

Keystone Driller Company, Beaver Falls, Pa., well drilling machinery and appliances.

American Diamond Rock Drill Company, New York, diamond drilling machinery.

Lidgerwood Mfg. Company, New York, mine and quarry hoists.

Trenton Iron Company, Trenton, N. J., wire rope tramway appliances.

Keuffel & Esser, New York, mine surveying instruments.

W. & L. E. Gurley, New York, surveying instruments.

Denver Fire Clay Company, Denver, exhibit of clay goods for assay purposes.

Austin Mfg. Company, Chicago, well drilling machinery and appliances.

St. Louis Well Drilling Machinery & Tool Company, St. Louis, well drill machinery and appliances.

Watt Mining Car Wheel Company, Barnesville, Ohio, mine cars and car wheels.

Jeansville Iron Works, Hagerstown, Pa., mine and quarry pumps.

E. G. Harris, Rolla, Mo., working plant of Harris pneumatic pumping system.

United States, Grand Prizes, Group 116.

American Coal Products Company, 17 Battery Place, New York, coal by-products.

Solvay Process Company, Syracuse, N. Y., salt and by-products.

Tiffany & Co., New York, gems and precious stones.

Northwestern Terra Cotta Company, Chicago, collective pavilion and terra cotta.

Pike Mfg. Company, Pike Station, N. H., abrasives.

Standard Oil Company, New York, petroleum (crude and refined).

United States Gypsum Company, Chicago, gypsum and its products.

Association of Portland Cement Manufacturers, collective exhibit of cement materials and their utilization.

Fairmont & Consolidation Coal Company, New York, coals and coal mining.

Pittsburgh Coal Company, Pittsburgh, coal and coal mining.

United States, Gold Medals, Group 116.

Cleveland Cliffs Iron Company, Cleveland, Ohio, charcoal iron industry.

Stonega Coke & Coal Company, Stonega, Va., coal and coke.

Rookwood Pottery Company, Cincinnati, architectural tiles, &c.

Beaver Falls Art Tile Company, Limited, Beaver Falls, Pa., enameled and glazed tile industry.

Matthews Consolidated Slate Company, Sears Building, Boston, slates.

J. S. Moyer & Co., Bethlehem, Pa., slate.

Vermont Slate Company, Zanesville, Ohio, slate.

Cleveland Stone Company, Cleveland, Ohio, grindstones.

Howard & Moss, Brooklyn, N. Y., cement testing sieves.

Blue Ridge Enameled Brick Company, Newark, N. J., enameled brick.

Tinius Olsen, Philadelphia, Pa., automatic tensile cement testing machine.

Falkenau-Sinclair Machine Company, Philadelphia, Pa., machine for testing cement.

Lehigh Portland Cement Company, Allentown, Pa., cement and products.

Hennebique Construction Company, New York, system of cantilever beam stairs for cement construction.

Parker Russell M. M. Company, St. Louis, fire brick and gas retorts.

Laclede Fire Brick Company, St. Louis, fire brick, tile, &c.

Evans & Howard Fire Brick Company, St. Louis, culvert and sewer pipes, fire brick, &c.

Winkle Terra Cotta Company, St. Louis, terra cotta.

Elmer & Amend, New York, radium, radium minerals, &c.

Great Northern Portland Cement Company, Baldwin, Mich., cement and products.

Quincy Mining Company, Hancock, Mich., copper ores and products.

American Tripoli Company, Seneca, Mo., tripoli.

Vulcanite Portland Cement Company, Philadelphia, cement and products.

Atlas Portland Cement Company, New York, cement and products.

American Cement Company, Philadelphia, cement and products.

North Carolina Talc & Mining Company, Hewitt, N. C., talc and manufactured products.

Boston & Montana Consolidate Copper & Silver Mining Company, Butte, Mont., silver and copper ores.

Tiffany Enameled Brick Company, Mowmen, N. Y., enameled brick and tile.

Herbert H. Hughes, St. Louis, method of coal combustion.

Helderberg Cement Company, Albany, N. Y., cement and products.

Davis Colliery Company, Elkins, W. Va., coal and model of surface workings.

Cyrus Borgner, Philadelphia, fire brick and other refractory materials.

United States, Grand Prizes, Group 118.

Allis-Chalmers Company, Chicago, mining machinery and metallurgical equipment.

Bethlehem Steel Company, South Bethlehem, Pa., heavy ordnance, special steel castings and forgings.

Goldschmidt Thermit Company, New York, welding process, equipment in operation.

International Nickel Company, New York, nickel, nickel steel, nickel alloys, copper.

Manganese Steel Safe Company, New York, manganese steel castings, safes and vaults.

Pittsburgh Reduction Company, Pittsburgh, aluminum and its products.

Norton Emery Wheel Company, Niagara Falls, N. Y., a new artificial abrasive, alundum.

Taylor Iron & Steel Company, High Bridge, N. J., manganese steel and its uses.

Worth Bros. Company, Coatesville, Pa., steel plates, boiler heads, &c.

Morgan Construction Company, Worcester, Mass., rolling mills, flying shears, gas producer, &c.

E. G. Anderson, Niagara Falls, N. Y., artificial graphite and carborundum.

Julian Kennedy, Pittsburgh, blast furnace and rolling mill construction.

Austin Mfg. Company, Chicago, ore crushers and handling equipment.

Lanyon Zinc Company, St. Louis, metallic zinc in architectural and other forms.

United States, Gold Medals, Group 118.

Alaska Tin Mining Company, Providence, Alaska, tin ores.

Appliance Mfg. Company, Chicago, differential draft gauge.

Baker & Co., Inc., Newark, N. J., platinum.

Carborundum Company, Niagara Falls, N. Y., carborundum.

Cleveland Cliffs Company, Cleveland, Ohio, charcoal blast furnace products and model.

Colorado Iron Works, Denver, Col., Bartlett concentrating tables, five-stamp mill.

Glasgow Iron Company, Pottstown, Pa., flanged and pressed open hearth steel.

Heine Boiler Company, New York, boilers in coal testing plant.

Hohman & Mauer Mfg. Company, Rochester, N. Y., thermometers in coal testing plant.

Lawrenceville Bronze Company, Pittsburgh, Pa., bronze castings.

Link Belt Machinery Company, Chicago, coal washing jig.

Mesta Machine Company, Pittsburgh, Pa., photographs and steel castings.

Obermayer & Co., Cincinnati, Ohio, facing, molders' tools and general foundries supplies.

Rogers, Brown & Co., Security Building, St. Louis, twenty makes of pig iron.

Western Forge Company, St. Louis, mill stamp and die forgings.

Granby Smelting & Refining Company, St. Louis, lead and zinc ores and products.

Robt. M. Thompson, New York City, historical exhibit of uses of nickel.

Wetherill Separator Company, New York City, magnetic separator.

Jos. Wharton, Philadelphia, historical nickel exhibit.

Whiting Foundry Equipment Company, Harvey, Ill., cupolas, electric cranes, cook ovens, &c.

R. D. Wood & Co., Philadelphia, gas producer plant.

Boston & Montana Company, Butte, Mont., copper concentrates and products.

F. W. Braun & Co., Los Angeles, Cal., laboratory equipment.

United Verdi Mining Company, Jerome, Ariz., copper concentrates and products.

Washoe Copper Company, Deer Lodge, Mont., copper concentrates and products.

Anaconda Copper Mining Company, Anaconda, Mont., ores, concentrates and copper.

Robins Belt Conveying Company, New York, belt conveyors.

C. O. Bartlett & Sons Company, Cleveland, Ohio, rotary dryer.

Western Carbonic Gas Company, Sacramento, Cal., magnesite.

American Concentrator Company, Joplin, Mo., concentrators, separators, milling machinery.

Carlizzo Copper Company, St. Louis, antique copper melting process.

E. T. Fairbanks & Co., Chicago, foundry scales.

Freeman & Stephens, Joplin, Mo., 60-ton ore dressing mill.

Primos Chemical Company, Primos, Pa., samples of rare metals and their salts.

Edgar A. Welmer, Lebanon, Pa., slag ladle and car.

Christopher & Simpson, St. Louis, structural iron work and castings.

Alaska Treadwell Gold Mining Company, Treadwell, Alaska, statistical exhibit.

Arthur Fritch Foundry & Milling Company, St. Louis, mining, milling and crushing machinery.

J. H. Williams & Co., Brooklyn, N. Y., drop forgings.

Joshua Hendy Machine Company, San Francisco, complete gold milling plant.

Quincy Mining Company, Hancock, Mich., copper ore and products.

H. Mueller Mfg. Company, Decatur, Ill., iron and brass castings.

National Lead Company, St. Louis, lead pipe and bar castings.

United States Grand Prizes, Group 119.

United States Geological Survey, Washington, publications.

American Institute of Mining Engineers, New York, publications.

THE IRON AGE, New York, publications.

The Engineering and Mining Journal (including the mineral industry), New York, publications.

Geo. Frederick Kunz, New York, publications, gems and precious stones.

David T. Day, Washington, publications, mineral statistics.

Belgium, Group 116, Grand Prizes.

Societe Anonyme des Acieries d'Angleur, Tilleur, structural steel.

Societe Anonyme d'Ougree Marihay, Ougree, structural steel and plate.

Belgium, Group 118, Gold Medals.

Gustav Boel, a la Louviere, structural steel.

Ste Anonyme a la Fabrique de Fer de Charleroi a Marchienne, fabrique de Fer de Charleroi, Marchienne au Pont, album of machinery.

Ste Anonyme des Forges de Clabecq et Clabecq, Forges de Clabecq et Clabecq, albums, samples, broken bars.

Societe Generale da Laminage Annulaire pour la Fabrikation des Chaines sans Soudure, Brussels, specimens, pamphlets, photographs.

Ste Anonyme Minere et Metallurgique de Monceau St. Fiacre, Monceau sur Sambre, albums, notes, drawings, specimens.

Ste Anonyme des Usines a la Culvre et a Zinc de Liege, Liege, copper and zinc bars, &c.

Ste Anonyme des Usines et Fonderies de Baume et Marpent, Haine St. Pierre, structural steel.

Valare Mabilie in Mariemont, Mariemont, railway rolling stock.

Brazil, Group 116, Grand Prizes.

Ministro Da Industria e Viacao, Rio De Janeiro, collective mining exhibit.

Commissao Do Estado de Minas Geraes, curo preto, Minas Geraes, ores and minerals.

Usina Wigg, Minas Geraes, manganese ores.

Companhia morro da mina, Minas Geraes, manganese ores.

Commissao do Estado Rio Grande do Sul, Porto Alegre, Rio Grande do Sul, marbles, ores and minerals.

Sociedade bom retiro, S. Gabriel, Rio Grande do Sul, wash gold, gold and iron ores and marble.

Brazilian Diamond Fields Corporation, Limited, Bahia, gravels.

Usina Esperanca, Esperanca, Minas Geraes, iron ores.

Fabrica de Ferro, Ipanema, Ipanema, S. Paulo, iron ores, clays, &c.

Companhia de Manganez, Queluz, Minas Geraes, manganese ore.

Canada, Group 116, Grand Prize.

Canadian Copper Company, Sudbury, Ontario, nickel ore and products.

China, Group 118, Gold Medal.

Imperial Provincial Government of Hupeh, Peking, iron and steel.

Cuba, Group 116, Gold Medal.

Spanish-American Iron Company, Santiago, iron ores.

France, Group 118, Grand Prizes.

Societe electro metallurgique Francaise de Froges, Froges, Is Ere, aluminum iron, its alloys and steel made in the electric furnace.

Dubois, Pinard et Cie., Sougland, par Saint-Michel, Arsne, enameling furnace and products.

France, Group 118, Gold Medals.

Edouard Plichon et ses fils, Paris, castings of iron and steel for automobiles.

Societe Metallurgique de Perigord, Paris, cast iron pipes and castings.

Louis Pinchart-Deny, Paris, perforated metal plates.

Paul Huh, Paris, saw blades and tools.

Hinque, Marret et Bonnain, Paris, rare metals.

Societe Anonyme Electro Metallurgique, D'Alberville, Savoie, alloys of iron and steel from the electric furnace.

Germany, Group 118, Grand Prize.

Bochumer Verein fuer Bergbau und Gusstahl Fabrikation, Bochum, steel balls.

Great Britain, Group 118, Grand Prize.

Birmingham Metal & Munition Company, Limited, Birmingham, solid drawn cartridge cases, etc.

Great Britain, Group 118, Gold Medals.

Lilleshall Company, Limited, Oakengates, iron ore, pig iron and cable iron.

Monk Bridge Iron and Steel Company, Leeds, samples pig iron, refined iron, bar iron, steel axles.

Sherard Cowper-Cowles & Co., England, specimens of electro-galvanizing.

Farnley Iron Company, Leeds, iron ore and coal.

Great Britain, Group 119, Grand Prize.

Iron and Steel Institute, London, publications.

Mexico, Group 118, Gold Medals.

Museo nacional de artilleria, Mexico, rifles, carbines, fuses and grenades.

Manuel Mondragon, Mexico, Mondragon's breech block.

Compania Fundidora de Fierro y Acero de Monterey, Nuevo Leon, steel and iron manufactures.

Arsenal Nacional, Vera Cruz, patterns for ordnance castings.

Fabrica Nacional de Armas, Mexico, ordnance.

Fundicion Nacional de Artilleria, Mexico, ordnance and other castings.

Maestranza Nacional de Artilleria, Mexico, mountain gun and mortar.

Equipment for the Michigan & Indiana Traction Company.—The Roberts-Abbott Company, Electric Building, Cleveland, Ohio, consulting electrical and steam engineers, are receiving proposals for the construction and entire equipment of a 60-mile electric railway for the Michigan & Indiana Traction Company. The power house, to be located at Bellevue, Mich., will be equipped with two 900 horse-power cross compound condensing engines, 160 pounds steam and 100 degrees superheat, to be direct connected to two 600-kw. three-phase, 123 revolutions per minute generators; two 60 horse-power exciter engines direct connected to two 40-kw. exciter generators; five 300-kw. rotary converters, with static step-up and step-down transformers for 16,500 volts transmission for four substations, switchboards and all other electrical equipment; four 400 horse-power water tube boilers with superheaters, stokers and individual stacks; 30-ton hand power crane, together with necessary auxiliary steam equipment. The buildings are to be designed for brick and structural steel or for concrete block construction.

Alternative bids will be received for single phase electrical equipment with alternating current motors; also for turbines in place of reciprocating engines. The equipment will include eight 51-foot passenger coaches equipped with four 75 horse-power motors, one baggage car and one work car. Rails will be 70-pound standard, and there will be several steel bridges, and a block signal system will be installed. A repair shop and carpenter shop will be erected and proposals will be received for the machinery. Plans and specifications are on file with the Roberts-Abbott Company, Cleveland, and with the Michigan & Indiana Traction Company, Battle Creek, Mich.

Crucible Steel Company of America.

The annual meeting of the stockholders was held October 19 in Jersey City, N. J. President Frank B. Smith submitted his annual report for the year ending August 31, as follows:

The net earnings for the year amount to \$488,160.33. This result is shown after charging off the following items:

Accounts receivable (doubtful and disputed).....	\$65,553.59
Depreciation in inventory.....	695,640.00
Total.....	\$761,193.59

These reduced earnings as shown may be attributed largely to the heavy decline in prices of pig iron, billets, scrap and other materials entering into the manufacture of steel and to the corresponding reductions in prices at which we were obliged to market our product sold on competitive lines, as well as the decrease in the volume of business generally, there being periods during the year where we were obliged to partially, and in some cases wholly, close down some of our mills.

On September 1, 1903—a period which witnessed the beginning of a dull year in manufacturing lines, carrying with it constantly decreasing values—we had on hand an unusually large stock.

The necessity of keeping the Clairton plant in full operation compelled this company to take from the Clairton Steel Company its surplus product, and we gave them orders accordingly, which we would not have done with an outside concern. This material was charged to, and inventoried by us, at the high market prices prevailing at that time. This, of course, seriously affected the profits during the earlier months of the year and until this stock was exhausted.

In placing figures of value on the inventory, we endeavored as nearly as possible to make a relative reduction over the previous year consistent with the market prices and cost of production, and, in order that the values might be unquestionably safe, a further considerable reduction was made on all finished stock on hand. This places the finished product at a lower valuation than it has been at any time during the existence of the company.

We have disposed of the capital stock of the Consumers Heating Company for \$50,000. This company was a producer and conveyor of natural gas, and during the past few years the supply had been steadily decreasing. It was deemed advisable by the management to dispose of the property rather than incur the cost of the purchase of other territory and prosecution of further developments. The sale resulted in a loss to the company of \$81,494.42, which has been charged to profit and loss.

The company has also charged off the sum of \$200,000 upon its investment in the Canton Steel Company's stock.

During the year the officers of the company have been authorized to write off the losses incurred in the construction, operation and sale of the Clairton Steel Company to September 1, 1904, amounting to \$3,997,426.40. Full particulars concerning the same have already been submitted to you through the statement issued by Chairman Wm. G. Park under date of September 20, 1904.

Your attention, however, is called to the fact that the total loss shown in the statement made by Chairman Park is \$4,013,417.90. This difference is due to the fact that this report is made as of August 31, 1904, at which date the exact amount of certain items of loss had not been definitely ascertained.

The repairs to the plants of the company necessary to maintain their full operating efficiency have been charged to operating expense account. Betterments made during the year amount to \$110,038.06.

You are asked at this meeting to authorize an issue of \$7,000,000 first mortgage 5 per cent. bonds, to be issued in series, one of which shall mature (after five years) annually during twenty years, these bonds to be secured by mortgage upon all the property and franchises of the company.

The objects of the issuing of these bonds are as follows: First, the retirement of the \$5,000,000 short time 6 per cent. collateral trust bonds, issued October 21, 1903;

second, the cancellation of the bills payable of your company aggregating \$940,187.03; third, to purchase the outstanding stock of the Park Steel Company, amounting to \$235,100 par value; fourth, to provide for future development and betterment.

It is the purpose of the board of directors to dispose of these bonds from time to time as the needs of the company may require at not less than 95 net, over and above all expenses and commissions, the stockholders to have the first right to subscribe.

In the month of September the volume of business was equal only to the average of the past year, but so far the month of October shows considerable improvement. Orders are coming in much more freely and we look for a steady gain both in amount of sales and in profit.

The old Board of Directors was re-elected, with the exception of W. P. Snyder, whose successor is J. D. Lyon of Pittsburgh. The \$7,000,000 bond issue referred to in the president's report was authorized.

Lack of space precludes the presentation of the financial statement. The details of the profit and loss account in this statement show the following debits:

Consumers Heating Company.....	\$81,494.42
Fire loss, Baltimore.....	2,720.88
Sundry losses.....	842.89
Clairton Steel Company.....	3,997,426.40
Canton Steel Company stock.....	200,000.00
Total.....	\$4,282,484.59

National Metal Trades Association Notes.

CINCINNATI, Ohio, October 17, 1904.—The next meeting of the Administrative Council will be held in the office of the commissioner at Cincinnati on October 27, 28 and 29. The following prominent men from all sections of the country compose this body: H. N. Covell, president, Lidgerwood Mfg. Company, Brooklyn, N. Y.; J. W. Gardner, first vice-president, Gardner Governor Company, Quincy, Ill.; W. D. Sayle, second vice-president, Cleveland Punch & Shear Works Company, Cleveland, Ohio; F. A. Geler, treasurer, Cincinnati Milling Machine Company, Cincinnati, Ohio; F. B. Polson, Polson Iron Works, Toronto, Ont.; O. B. Kinnard, Kinnard-Haines Company, Minneapolis, Minn.; A. Falkenau, Falkenau-Sinclair Machine Company, Philadelphia, Pa.; C. E. Hildreth, P. Blaisdell & Co., Worcester, Mass.; G. F. Steedman, Curtis & Co. Mfg. Company, St. Louis, Mo.; M. H. Barker, American Tool & Machine Company, Boston, Mass.; P. B. Kendig, Seneca Falls Mfg. Company, N. Y.; F. K. Copeland, Sullivan Machinery Company, Chicago, Ill.; W. P. Egan, commissioner, and Robert Wuest, secretary. This meeting promises to be a very interesting one, and it is hoped profitable as well, as several important matters are to come up for consideration. On October 25 and 26 there will be a meeting of the Plan and Scope Committee, consisting of Messrs. Sayle, Kinnard, Falkenau, Hildreth and Copeland. These gentlemen will formulate a report to bring before the council. Accommodations have been secured at the St. Nicholas Hotel for members attending.

Reports from Springfield, Mass., state that the association is still growing, quite a number of new members having been elected at the October meeting, among the number being some of the most prominent business men of the city.

An attempt is being made by the Pattern Makers' Union of Milwaukee to establish a new rate of 38 cents per hour. It has succeeded in getting several of the smaller shops to pay this rate. The union appears to be very strong in Milwaukee.

The Chicago lodge of International Association of Machinists, District No. 8, has sent out an earnest appeal to all officers and members of local lodges of machinists everywhere for financial assistance, one paragraph of which reads as follows: "Our members working in this city have paid heavy assessments in the past four years, and they are now paying weekly assessments to keep up the fight, but our court expenses are so heavy that we are compelled to ask for aid. We have strikes on in 32 shops, and have just that number of injunctions against us at this time. Our members are being arrested daily, and we have 138 cited for contempt of court. While we claim we are only doing our duty as law-abiding citizens, we are compelled to protect our members when they are molested by the special officers employed by the Employers' Association." The letter further says that there are about 1000 machinists now on strike in Chicago, and probably 1000 more who were out of work before the strike, making a total of 2000 men for whom it is necessary to make provision.

As a result of a recent investigation made by the New England Conference Board of the Iron Molders' Union respecting labor conditions in 30 of the principal New England manufacturing cities, it appears that of the shops in which 3030 molders are employed 86 are union and 56 are open shops.

MANUFACTURING.

Iron and Steel.

The Virginia Iron, Coal & Coke Company, Bristol, Va., expects to start up the two Middlesboro, Ky., furnaces in the near future. One of these stacks will go in blast in December and the other will be blown in in January.

The sheet mill at the Sharon Steel Works, Sharon, Pa., is being changed into a continuous mill and will shortly be placed in operation.

The Baldt Steel Company, New Castle, Del., has increased its capital stock from \$250,000 to \$375,000.

The Allegheny Steel & Iron Company, Pittsburgh, will add another sheet mill to its plant at Avenue, Pa., which now contains six hot mills, all of which are in operation. The Interstate Steel Company, an identified interest of the above named concern, will also add another sheet mill to its plant at Avenue.

Rebecca Furnace of the Kittanning Steel & Iron Mfg. Company, Kittanning, Pa., has blown in after being idle about three months. The furnace has been relined, a new top added and coke bins have been erected. This furnace runs mostly on forge iron and has a daily capacity of about 250 tons.

General Machinery.

The Coulter & McKenzie Machine Company, Bridgeport, Conn., has made extensive changes in its plant, the machine shops having been doubled in capacity by the removal of the foundry to the company's East End foundry, the capacity of which has been correspondingly enlarged. An electric lighting plant has been installed in the shops and other material improvements have been made, including the laying of a large area of concrete flooring.

Dodge & Day, engineers, Philadelphia, Pa., have placed the orders for generators and motors for Alexander Bros., Philadelphia, with the Western Electric Company; for the shafting, hangers, &c., with the Geo. V. Cresson Company, and wiring with the Buchanan Company, all of Philadelphia. This firm of engineers has just been commissioned to install a heating system in the building lately acquired by Alexander Bros. at 412 North Third street, Philadelphia, and has also taken charge of the installation of additional motors at the plant of Schaum & Uhlinger, Second street and Glenwood avenue, Philadelphia.

The George Halas Mfg. Company, 141st street and Rider avenue, New York, manufacturer of coal handling machinery, is to build a four-story brick shop, 54 x 100 feet.

The Hutchinson Hide & Leather Machine Company, Lynn, Mass., has been incorporated with authorized capital stock of \$90,000 to manufacture machinery for removing the hair from hides. The machines are being built by outside parties at the present time.

The Missouri Valley Bridge & Iron Works, Leavenworth, Kan., which is building a new plant, is in the market for the following machinery: One angle shear, 6 x 6 x $\frac{3}{4}$ inches; one 24-inch beam punch, one bulldozer, forge, riveter and rip saw.

The business of James & Foote, makers of cut gears and special machinery, at 58-60 South Canal street, Chicago, has been purchased by the Foote Brothers' Gear & Machine Company, incorporated for \$30,000. The new company has removed the plant to 24-30 South Clinton street, increasing the shop capacity about 50 per cent. through the installation of new machinery. The company will manufacture cut gears and J. B. Foote's patented universal milling machine, and will also build machinery to order.

The Cascaden Mfg. Company, Waterloo, Iowa, is erecting a two-story machine shop, 60 x 140 feet, and a warehouse and office, two stories, 60 x 140 feet, to replace the buildings recently destroyed by fire. Only small damage was done to equipment, and the company will not, therefore, be in the market for additional machinery. The company's foundry was not destroyed.

The Nyquist Machine Company, Moline, Ill., which has been doing business at a small shop on Thirteenth avenue, has outgrown its quarters and erected a new building on Fifteenth street. The building will be equipped with the latest machinery for doing nickel plating, die work, pattern work and light manufacturing.

The Specialty Mfg. Company, Indianapolis, Ind., has just completed the removal of its shops from 400 South Meridian street to the premises at 32, 34 and 36 East South street, where the company will have 50 per cent. more capacity than heretofore. The new shops are being rapidly gotten into shape for the production of its specialties—electric fans, blowers and motors.

The business of the J. G. Blount Company, Everett, Mass., which has been conducted as a copartnership, has been incorporated under Massachusetts laws with a capital stock of \$35,000. The incorporators are Eugene I. Blount, John G. Blount and Nelson P. Brown. No change will be made in the management.

The Oregon Short Line has under construction at Salt Lake City, Utah, a number of new buildings, including a 20-stall round house, power house to contain two 100 horse-power boilers, which is to furnish power to operate a 75-foot through turntable; coal chutes, ash pits and ice houses. Other buildings will also be erected. The horse-power of stationary engines and

machinery for equipment have not been decided upon, but it is probable that both can be furnished from the old shops to be dismantled in that city. William Ashton, chief engineer, has the matter in charge.

W. M. Brewer, president of the Colonial Foundry & Machinery Company, South Norwalk, Conn., has purchased an interest in the H. A. Tuttle Mfg. Company, Stamford, Conn., and the machinery has been moved to South Norwalk, where the Tuttle Company will do business in larger quarters on the second floor of the Colonial Company's works. Gasoline engines, reverse gears, tapping machines and some other specialties will be manufactured. Orders for tapping machines are already in hand. The Colonial Foundry & Machinery Company's works have recently been changed to electric power, which is furnished by the municipal power plant. The works are running day and night because of the demand for the company's Argand steam and hot water heaters, which is greater even than was anticipated.

The Advance Machinery Company, Toledo, Ohio, manufacturer of wood working machinery and glue tanks, has completed and moved into its new plant. The company reports more machines sold than it will be able to finish in the next 60 days.

The Frewsburg Mfg. Company has been incorporated at Frewsburg, N. Y., to manufacture tools and machinery. Capital, \$15,000. Incorporators: E. W. Scowden, E. N. Vandewort and J. T. Nichols of Frewsburg.

F. Stutzman is moving his machine shop from Williamsport to South Fork, Pa.

The Hoosier Jack & Combination Tool Company has been incorporated at Indianapolis, Ind., with \$10,000 capital stock. The incorporators are John B. Runner, L. J. Dunn and Oliver E. Dunn.

The Fort Wayne Engineering Company has been incorporated at Ft. Wayne, Ind., with \$5000 capital stock, by A. C., John D. and H. B. Olds.

A Chicago organ specialist has just completed an experimental pipe organ in the pattern shops of the Gadsden Car & Machine Company, Gadsden, Ala., and if it proves to be the success expected the probability is the company will go into its manufacture on a large scale.

The American Ball Bearing Company, Cleveland, is erecting a large addition and has recently placed an order with the Cleveland office of the Marshall & Huschart Machinery Company of Chicago for a number of machine tools aggregating over 40 pieces. The order includes ten Cincinnati Milling Machine Company's milling machines, ten Drees Machine Tool Company's turret lathes and 20 engine lathes of various makes.

President Joseph Ramsey of the Wabash Railroad announces that the company has appropriated \$3,000,000 for improving its Toledo terminals, building a cross town line and a union passenger station in that city. The station alone will cost over \$500,000, and plans for same are being prepared.

Bridges and Buildings.

The Wisconsin Bridge & Iron Company, Milwaukee, Wis., has been awarded the contract for the construction of a steel bridge at Green Bay, Wis., the contract price being \$11,500. The bridge is to be a counterbalanced plate girder draw span, 128 feet in length, with 20-foot roadway and two 6-foot walks.

Stupp Brothers Bridge & Iron Company, St. Louis, Mo., announces its removal to its new plant on Weber road and the Missouri Pacific Railway, at Carondelet. The company states that its new plant is complete in every way, with independent water system, independent sewer system, lighting plant, &c. The plant is fully equipped with overhead trolleys and an industrial railway system; in addition to being served by standard gauge side tracks. The plant occupies about 5 acres of ground. Employment is given to 200 men, and the annual output of the works is stated to be about 10,000 tons.

The Minneapolis Bridge & Iron Company, Minneapolis, Minn., has secured contract for the new Red Lake bridge on Robert street, Crookston, Minn., its bid being \$10,000.

Wm. Fife & Son, Indianapolis, Ind., have received the contract for the erection of a new bridge over the White River at Morris street, bidding \$138,712. The bridge will be 594 feet long.

The Grand Rapids Bridge Company, Grand Rapids, Mich., will build the 390-foot bridge across Stearns bayou, near Grand Haven, Mich. The bridge will cost in the neighborhood of \$8000.

The Winslow Brothers Company, ornamental iron worker, Chicago, is about to erect a larger plant in another location, as the structures adjoining the present location prevent its extension there.

Roemheld & Gallery, Chicago, have been awarded the contract for building a bridge over the Fox River at Oshkosh, Wis. The company's bid was \$55,435.

Power Plant Equipment.

The Verde Water & Power Company intends constructing irrigation works in the Salt River Valley, Arizona, near Phoenix. The company will build a large reservoir storage dam, with a main canal about 50 miles in length, and an electrical generating

station at a place where there is a drop of about 365 feet, where there will be generated nearly 20,000 horse-power. It is probable that bids will not be asked for before six or eight months.

The Reliance Turbine Company, New York, has been incorporated with a capital stock of \$10,000 by E. H. Ludeman and O. H. Ludeman of 39 Cortlandt street and H. G. Cook of Paterson, N. J.

The Woodmanse Mfg. Company, maker of windmills, Freeport, Ill., has purchased for installation in its plant a 300 horse-power Corliss engine from the Vilter Mfg. Company, Milwaukee, Wis., and also a 50 horse-power generator from the Sprague Company, Chicago.

The Chandler & Taylor Company, Indianapolis, Ind., advises that it will not be necessary for it to purchase additional equipment for the new boiler shop now in course of construction, as the equipment of the old shop will be utilized for this purpose.

The Suburban Power Company has been incorporated to do business in Niagara Falls and vicinity. The capital stock is \$10,000. The directors are D. O. Mills, Edward A. Wickes, New York; William B. Rankine, George W. Davenport, De Lancy Rankine, Niagara Falls; James Sweeny, Jr., and Nathaniel Rochester of Buffalo. The directors have organized by electing D. O. Mills, president; William B. Rankine, first vice-president; Nathaniel Rochester, second vice-president; De Lancy Rankine, secretary-treasurer and general manager. Executive Committee: William B. Rankine, Edward A. Wickes and George W. Davenport; counsel, Harold Sturges Rankine. The company will do business in the city of Niagara Falls, village of La Salle, town of Wheatfield, town of Pendleton, Niagara County, and in the town of Amherst and village of Williamsville, Erie County.

Wholen Brothers, Leavenworth, Kan., have the contract for furnishing a 50 horse-power boiler and a No. 4 Marsh pump for the military home at National Military Home, Leavenworth, Kan.

James F. Shaw & Co., Boston, Mass., have been awarded the entire contract for building and equipping a new electric line connecting Boston and Providence, the contract price being about \$3,000,000. About 32 miles of new track will be laid. The contract includes large power stations.

The power house of the Warren, Bristol & Fall River branch of the New York, New Haven & Hartford Railroad will be considerably enlarged and additional equipment installed, including four Babcock & Wilcox boilers of 400 horse-power each and two Parsons steam turbines, each direct connected with a 750-kw. Westinghouse generator. Westinghouse, Church, Kerr & Co., New York, have the contract for the entire new equipment.

The Lawrence Pump & Engine Company, Lawrence, Mass., has been incorporated under Massachusetts laws with \$24,000 capital stock to manufacture centrifugal pumps and vertical steam engines. The corporation takes in the business of F. A. & P. Hall. The plant has been enlarged and greater facilities for doing heavy machine work have been added. H. L. Mellor is the president, F. A. Hall the treasurer and Percy Hall the secretary. Mr. Mellor has had long experience in pump and engine work and will have charge of these lines of manufacture.

William M. Hoffman & Co., Incorporated, 382 Ellicott square, Buffalo, N. Y., which will build the Hoffman rotary engine, is constructing a 500 horse-power engine to supply power for the new plant to be erected by the company. Because of so many inquiries as to whether the company is ready to fill orders or not, it decided to lease buildings, which are now being equipped with machinery for producing the engines. It is the intention to build the new plant in the spring.

The Grand Trunk Railway System contemplates substituting electricity for steam for operating the St. Clair tunnel between Port Huron and Sarnia, Canada. The matter is now up to the officials of the road, who have not yet taken action. Should it be decided to install electricity it is likely that a large power plant will be installed.

Broderick & Quinlan of Montpelier, Ind., have accepted a proposition made by Hartford City, Ind., to locate their boiler plant there.

The Western Launch & Engine Works has been incorporated in Michigan City, Ind., with \$30,000 capital stock by Frank R. Warren, Francis H. Doran and Robert Zorn.

The Board of Public Service of Cleveland has asked for proposals on furnishing two 50 horse-power tubular boilers, one 25 horse-power engine and one pump of 150 to 200 gallons capacity per minute, for the Cleveland Boys Home at Hudson, Ohio.

F. C. Werk, Cleveland, has received two contracts for installing electric generating plants; one is 750 horse-power for the Ohio Box Board Company, Rittman, Ohio, and the other, 350 horse-power, for the Ohio Injector Company, Wadsworth, Ohio.

The City Council of Elyria, Ohio, has voted to sell bonds to the amount of \$25,000 for the purpose of purchasing a new 5,000,000-gallon pumping engine for the city water works pumping station.

The Timblin Engineering & Foundry Company, whose works are at Creighton, Pa., advises us that owing to the heavy demand for its engines and pumps it has decided to remove the

plant from Creighton to some other location. A number of sites have been offered to the concern, but as yet no selection has been made. This concern also contemplates a material increase in its capital stock.

Foundries.

At the recent annual meeting of the Pacific Jupiter Steel Company, San Francisco, Cal., all the officers were re-elected.

Mayor Howard H. Houston of Chester and James A. G. Campbell have been appointed receivers for the Delaware River Steel Casting Company, Chester, Pa. The company has a capital stock of \$500,000 and established the plant about a year ago. It is stated in the bill of equity filed that the Real Estate Trust Company of Philadelphia holds a mortgage of \$300,000 against the property; that bonds have been issued to the amount of \$146,400; that the bills payable amount to \$87,500; that the property and tools are worth \$125,000, and that the personal property and bills receivable amount to \$12,000. S. Everett Sproul, manager of the Seaboard Steel Casting Company, and Richard Peters, Jr., have been appointed to appraise the property.

The Chattanooga Roofing & Foundry Company, Chattanooga, Tenn., is installing in all departments a sprinkler system of the General Fire Extinguisher Company.

The American Graphophone Company, Bridgeport, Conn., is contemplating the erection of a new foundry and japanning plant, 65 x 200 feet, but a definite decision as to when work will begin has not been reached.

The Southern Steel Works, Chattanooga, Tenn., is erecting an additional building, 70 x 120 feet, which, when finished, will be made the foundry proper, and the old building used for cleaning castings. The equipment of the new building will be the most modern, including engine made by Lane & Bodley, Cincinnati, Ohio, dynamo, high pressure blower, No. 9 blower and air compressor.

The New York Car Wheel Company, Buffalo, N. Y., has added two buildings to its plant at the Belt Line and Forest avenue, and is equipping them for use as machine shops, additional facilities being necessary for machining castings for the Pennsylvania's Hudson River tunnel, for which the company has a large contract.

A judgment for \$25,000 awarded to the Buffalo Union Furnace Company against J. F. Aldrich as receiver of the New York Car Wheel Works has been reaffirmed in the Appellate Division. The suit grew out of a breach of contract to buy iron. Dividends totaling 20 per cent. have been paid to the creditors of the defunct car wheel works, and the furnace company will now get its share of such dividends and all others.

Fires.

Fire recently visited the plant of the Chicago Car & Locomotive Works, Chicago, destroying the locomotive display building, one of the car erecting shops, a storehouse, two locomotives and ten new cars in course of erection, entailing a loss of about \$35,000. The balance of the plant was not damaged.

The spice and coffee plant of William Scull & Co., Camden, N. J., was destroyed by fire October 13. The loss is placed at \$50,000.

The Daly disk, harrow and barrel cart factory at Charles City, Iowa, was recently destroyed by fire, entailing a loss of \$40,000.

The repair shops and roundhouse of the Toronto, Hamilton & Buffalo Railway, at Hamilton, Ont., were recently destroyed by fire. The loss is placed at \$35,000.

The Camden Woolen Company's plant, at Camden, N. J., was damaged \$75,000 by fire October 12.

The plant of the United Zinc & Chemical Company, Argentine, Kan., was burned last week. The loss is estimated at \$100,000.

McLennan's Paint Works, at Buffalo, N. Y., were damaged \$150,000 by fire on October 17.

The plant of the Anchor Rubber Tire Company, Setauket, L. I., was destroyed by fire October 18. The loss is placed at \$200,000.

The carriage shops of J. C. Miller & Son, Portland, Ind., were destroyed by fire October 9; loss \$7000.

Hardware.

The Denning Fence Works, Cedar Rapids, Iowa, purposes greatly increasing its capacity during the coming year for the manufacture of woven wire fence, and about next July expects to erect a wire mill and add some barb wire and nail machines. The company will probably install about 25 blocks to start, provision being made in the erection of the mill for an additional 25 blocks. The company makes at present field, poultry and lawn fence, portable corn cribs and portable grain bins, and expects to add to this line from time to time numerous small wire specialties.

The Peacock File Company has been organized at Buffalo, N. Y., to take over and continue the file manufacturing business of Malschoss Brothers, deceased, and additions will be made to the factory on Chicago street.

The F. P. Smith Wire & Iron Works, Chicago, has furnished all the ornamental iron and bronze work in the new Chicago

Savings Bank Building, consisting of bronze and iron stairs, bronze elevator enclosures, bronze entrance, iron store fronts, window guards, fire escapes and iron gates.

The North & Pfeiffer Mfg. Company, New Britain, Conn., has been organized to take over a part of the business of the New Britain Hardware Mfg. Company. It will manufacture a spring motor of a new type and the Lipscomb disk screw corks. The company has located in the old factory of the New Britain Machine Company on Chestnut street. C. Pfeiffer is president and J. S. North treasurer of the corporation. A part of the business of the New Britain Hardware Mfg. Company was acquired by Landers, Frary & Clark, who have added the company's factory to their large plant.

United States Horse Shoe Company, Erie, Pa., has been incorporated with a capital stock of \$225,000 and a bond issue of \$50,000, maturing in 20 years. L. A. McElroy is president of the company; Louis Streuber, vice-president; B. S. Fletcher, secretary; I. S. Curtis, treasurer, and Messrs. McElroy, Streuber, Fletcher and Curtis and Fred. Zelgham, directors. Work on the buildings which will comprise the plant has commenced, and it is expected that it will be in operation by January 1. The buildings, which will be entirely of steel and of the most modern type, will include a main building, 70 x 300 feet; a warehouse, 40 x 100 feet; a machine shop, 30 x 60 feet, and a supply building, 30 x 100 feet. The plant will have a capacity of 600 kegs of horseshoes per day.

T. E. Jackson Wooden Ware Company, Atchison, Kan., which manufactures in the neighborhood of 100,000 dozen handles per year, states that it has been doing quite an extensive export business for the past two years. The company makes all kinds of hand shaved and turned hickory handles, &c.

Union Furnace Mfg. Company, Morrell, Pa., manufacturer of shovels, spades and scoops, registers, garden rakes, garden and corn hoes, curry combs, trowels, &c., has made numerous additions to its plant during the past season, the principal one being a solid concrete building with steel roof, 40 x 70 feet. This building has been thoroughly fitted up with the most modern machinery for the manufacture of D handles.

Miscellaneous.

The Brail (Ind.) Gas Company found that even before gas had been turned into the new mains electrolysis had ruined many of them, caused supposedly by waste current from the street railway company.

The Lippincott Glass Company has just completed at Alexandria, Ind., what is said to be the largest glass furnace in the United States. It is a 50-pot oval furnace, more than twice the size of those in common use, 18 pots being regarded as the largest heretofore. The new furnace is intended to effect a large saving in fuel. The plant uses natural gas and producer gas, changing from one to the other without interfering with operations. Twenty glass blowers can work at the furnace simultaneously. The new addition to the plant in which the furnace is situated is absolutely fire proof, not a stick of timber being used. When in full operation the plant employs 750 men, with a weekly payroll of \$10,000.

The Evansville Lead & Spar Company, Evansville, Ind., has been incorporated with \$25,000 capital stock. The directors are G. L. Müller, J. C. Miller, J. L. Thuman, A. A. Klein, E. H. Mann, F. W. Ruff.

The National Steel Fitting Company, Chicago, Ill., has been incorporated for the manufacture of patented seamless steel pipe fittings. Charles A. Dies is president. For other information address W. A. Bowater, acting manager, National Industrial Securities Company, First National Bank Building, Chicago.

The coking plant of the United States Steel Corporation at South Sharon has resumed operations, employing 200 men.

The plant of the Union Chain & Forge Company, Ellwood City, Pa., was sold a few days since by the receiver to H. Frederick Mercer for \$4600. It is likely that it will be placed in operation within a few months by a new corporation to be formed for the purpose.

The Brown Cotton Gln Company, New London, Conn., is to build an addition to its plant, 165 x 232 feet, to be devoted to the assembling department and carpenter and paint shops. This will relieve the present buildings, giving more room for manufacturing. The company's business has been so brisk of late that it has been necessary to work night gangs.

The Fuel Saving Company, Utica, N. Y., recently incorporated, will put on the market the patented inventions of S. P. Smith covering improvements in furnaces, boilers and ventilating apparatus. The plant has not been determined upon. Address C. S. Gibson.

The National Enameling & Stamping Company is planning the erection of a new warehouse in Chicago which will have better railroad facilities than its present quarters. It is hoped by the company that the new building may be erected and completed for occupancy next spring. Land has been secured at 27 to 39 Kinzie street.

The Kratzer Carriage Company, Des Moines, Iowa, has purchased and installed one 150 horse-power internally fired boiler, 8 x 16 feet, furnished by the Springfield Boiler Company, Springfield, Ill., and also one new 5 horse-power electric motor bought

from the Westinghouse Company. The company will soon be in the market for a new generator or dynamo, the purpose being to change the power for the plant to an electrical basis.

The Simplex Washer Company, Davenport, Iowa, has purchased the following machinery for the plant which it is now building: From the American Wood Working Machinery Company, one combination saw and dado machine, one 36-inch band saw, one 18-inch jointer and one 6-inch four-side molder; Manning, Maxwell & Moore, Chicago, one Fay & Egan 26-inch planer and one Fay & Egan shaper; Moline Tool Company, Moline, Ill., one automatic combined screw driver and one head machine for cutting dashers. The company will also install one 75 horse-power boiler, one 50 horse-power boiler and one 50 horse-power engine, which it has on hand.

The Star Tank Company, Middlebury, Ind., announces that it will remove about November 1 to a new plant recently purchased at Goshen. The plant was formerly used by a firm manufacturing wood pumps. It consists of a building, 66 feet wide by 300 feet long, which is served by both Lake Shore & Michigan Southern and Big Four Railway switch tracks. Very little equipment will have to be purchased, as the company expects to remove all machinery and tools from the Middlebury plant.

Having outgrown its quarters at St. Louis, Mo., the American Arithmometer Company has moved into its new factory at Detroit, Mich., which has much larger facilities.

The Diamond Iron Works, Minneapolis, Minn., is erecting a new \$16,000 building which will be used for the company's offices, pattern shop and warehouse. The structure will be two stories high.

The silk manufacturing business of M. J. Green will be removed from Paterson, N. J., to Norwich, Conn., where a new mill will be erected, 50 x 200 feet, two stories and basement.

The Standard Bending & Art Glass Company, New Haven, Conn., is building a new plant 32 x 64 feet, with an ell 16 x 26 feet, and proposes to erect another building 32 x 56 feet. It will be equipped with four glass bending furnaces and automatic machinery.

Upon the petition of the Assets Realization Company, filed in Circuit Court No. 2 October 12 by Carrington & Carrington, attorneys, an order was signed by Judge Sharp requiring cause to be shown by October 27 why the plant, machinery and other assets of the Henry McShane Mfg. Company, Baltimore, Md., should not be offered for sale at public auction by Clarence W. Dickerson and John Gill, Jr., the receivers. The petition states that the petitioner is a creditor of the McShane Company in the sum of about \$30,000, less about 30 per cent. allowed in the distribution. Since the receivers were appointed, the petition alleges, the business of the McShane Company has been carried on at a loss, and there is no prospect of the realization of the hope that the company would be reorganized. The petition also refers to the fact that the receivers have been offered \$150,000 cash for the property, and claims that they should be directed to accept it or to offer the property at public auction.

Within a month the New York Central expects to be moving freight over its Niagara frontier industrial line, the Niagara Transfer Railway, now being constructed along the Niagara River between Buffalo and Tonawanda to afford access to industrial plants located in that vicinity.

The Toledo Metal Wheel Company, Toledo, will erect a four-story addition to its plant at West Bancroft street and Smead avenue, that city. No contracts will be let for the building, and the work will be done by day labor.

Frank L. Thomas of Youngstown, Ohio, is at the head of a new company formed to take over the plant and business of the embarrassed Fredonia Mfg. Company of that city. The company will manufacture gasoline automobiles and wagons.

The Banting Machine & Implement Company, Toledo, has increased its capital stock from \$75,000 to \$225,000, and will erect a warehouse and repair shop on Monroe street.

The Mayo Life Boat Company, Toledo, Ohio, has been organized with a capital stock of \$500,000 to manufacture a steel lifeboat, the invention of Robert D. Mayo of Frankfort, Mich. The Toledo Machine & Tool Company of Toledo is making dies for the steel boats and for the present the pressing will be done by the Ricard Boiler & Engine Works. The company is planning to erect a factory building 60 x 240 feet, which, when equipped with machinery, will cost over \$100,000.

The Peerless Motor Company of Cleveland has broken ground for its new plant, to cover 6 acres on the Nickel Plate Railway, near Oakdale street, in the east end of Cleveland. A machine shop two stories high and 50 x 258 feet will be erected at once, after which a foundry 70 x 100 feet will be erected. Other buildings to be erected next year include an erecting shop, 60 x 300 feet; painting and upholstering shop, 50 x 200 feet; wood working shop, 50 x 200 feet; power house and office building. The new plant will have more than triple the capacity of the present plant, which has been entirely inadequate for the company's rapidly growing business.

The Craig Shipbuilding Company, Toledo, Ohio, has secured a contract from the Government for a lighthouse tender. She will be a fast steaming boat and the contract price is \$69,750. It will be the first vessel of the kind ever built in Toledo.

The Iron and Metal Trades

There has developed during the past week a pronounced change in the attitude of many sellers and buyers of Pig Iron, and an advance has been established practically all along the line. The situation is somewhat complex, however. In the East there have been large sales, aggregating probably upward of 100,000 tons, of Basic, Forge and Foundry Pig Iron, which have carried values up about 25 cents per ton, with some makers now asking 50 cents per ton more. The greater part of the transactions are for delivery before the close of the year, although there are instances of sales running well into next spring.

The Alabama furnace interests have put up prices by increments of 50 cents a ton until they are on the basis of \$10.50 and \$11 for No. 2 Foundry at Birmingham. They have, however, not done much business. In fact, at the figures now asked they are considerably above the parity of the prices of Northern Irons in the great markets of the Central West and Northwest. Some of the furnaces along the Lakes and in the Chicago district have made some good sales at an advance for early delivery and are demanding considerably higher prices for 1905 delivery. In some sections, notably in the tidewater markets, a pause has followed and buyers are holding off somewhat.

There is some talk that some of the large Steel interests have actually entered, or are about to enter, the market for Pig Iron. This is true, owing to special circumstances, of one large plant. The leading interest, however, is not expected to become a buyer, but as a matter of fact, from present indications, will blow out a number of stacks before the close of the year. Bids were asked for a round lot of Basic Pig for one of the subsidiary plants in the Philadelphia district, but since the figures submitted hovered close to \$13, delivered, it was decided to draw the supplies from the company furnaces in the Pittsburgh district, as being more advantageous.

It is observed that some of the purchases of Basic Pig in the East were made by Steel works that are far from running at full capacity, and are, therefore, in anticipation of future orders for Finished Material.

The upshot is that Pig Iron markets are decidedly stronger and higher, but that the excitement is still too great to determine the exact bearings.

It all depends upon whether the demand for Finished Material is going to increase permanently and to what extent. The outlook is encouraging from many indications. The car companies have taken some good orders, aggregating about 19,000 cars, during the past two weeks, with negotiations pending for more. The Lake ship-builders have taken on additional contracts from various sources, and it is expected that on Friday the United States Steel Corporation will place an order for four vessels of the largest size, the plans calling for boats of a capacity of 12,000 net tons. Fair orders are coming up for Structural Material, the Wabash having placed 5000 tons for the Pittsburgh terminal this week, while the Lackawanna Company has ordered a 2500-ton bridge at Buffalo.

The discounts on Merchant Pipe have been revised, thus establishing an advance of about \$2 per ton. Among the recent orders is a lot of 2000 tons for a pipe line for India.

In this city the order for 12,000 tons of Cast Iron Pipe has not yet been placed by the successful contractor.

Later.—One Central Pennsylvania steel plant has closed to-day for about 30,000 tons of Basic Pig, at prices rising from \$13 to \$13.50, delivered.

A Comparison of Prices.

Advances Over the Previous Month in Heavy Type,
Declines in Italics.

At date, one week, one month and one year previous.

Oct. 19, Oct. 12, Sept. 21, Oct. 21,
1904. 1904. 1904. 1903.

FIG IRON:

Foundry Pig No. 2, Standard, Philadelphia	\$14.50	\$14.25	\$14.25	\$14.75
Foundry Pig No. 2, Southern, Cincinnati	13.00	12.50	12.00	13.00
Foundry Pig No. 2, Local, Chicago	13.50	13.50	13.50	15.50
Bessemer Pig, Pittsburgh	13.10	12.85	12.60	15.85
Gray Forge, Pittsburgh	12.25	12.00	11.75	14.00
Lake Superior Charcoal, Chicago	15.25	15.25	14.75	17.50

BILLETS, RAILS, &c.:

Steel Billets, Pittsburgh	19.50	19.50	19.50	27.00
Steel Billets, Philadelphia	22.00	22.00	21.50	26.50
Steel Billets, Chicago	22.50	22.50	22.50	28.00
Wire Rods, Pittsburgh	26.00	26.00	26.00	34.00
Steel Rails, Heavy, Eastern Mill	28.00	28.00	28.00	28.00

OLD MATERIAL:

O. Steel Rails, Chicago	11.00	11.00	11.00	13.50
O. Steel Rails, Philadelphia	13.00	12.25	11.75	13.50
O. Iron Rails, Chicago	16.50	16.50	16.00	17.00
O. Iron Rails, Philadelphia	16.50	16.00	15.50	17.50
O. Car Wheels, Chicago	12.00	11.75	11.50	18.00
O. Car Wheels, Philadelphia	12.50	12.00	11.50	16.50
Heavy Steel Scrap, Pittsburgh	12.50	12.00	11.50	15.00
Heavy Steel Scrap, Chicago	11.00	10.50	10.00	13.00

FINISHED IRON AND STEEL:

Refined Iron Bars, Philadelphia	1.43½	1.43½	1.43½	1.50
Common Iron Bars, Chicago	1.35	1.35	1.35	1.40
Common Iron Bars, Pittsburgh	1.30	1.30	1.25	1.45
Steel Bars, Tidewater	1.44½	1.44½	1.44½	1.70
Steel Bars, Pittsburgh	1.30	1.30	1.30	1.60
Tank Plates, Tidewater	1.54½	1.54½	1.54½	1.78
Tank Plates, Pittsburgh	1.40	1.40	1.40	1.60
Beams, Tidewater	1.54½	1.54½	1.54½	1.73½
Beams, Pittsburgh	1.40	1.40	1.40	1.60
Angles, Tidewater	1.54½	1.54½	1.54½	1.73½
Angles, Pittsburgh	1.40	1.40	1.40	1.60
Skelp, Grooved Steel, Pittsburgh	1.30	1.30	1.30	1.50
Skelp, Sheared Steel, Pittsburgh	1.35	1.35	1.35	1.60
Sheets, No. 27, Pittsburgh	2.00	2.00	2.00	2.50
Barb Wire, f.o.b. Pittsburgh	2.05	2.05	2.05	2.60
Wire Nails, f.o.b. Pittsburgh	1.60	1.60	1.60	2.00
Cut Nails, f.o.b. Pittsburgh	1.60	1.60	1.60	2.15

METALS:

Copper, New York	13.12½	13.00	12.75	13.12½
Spelter, St. Louis	5.15	4.95	4.95	5.45
Lead, New York	4.20	4.20	4.20	4.40
Lead, St. Louis	4.20	4.12½	4.10	4.25
Tin, New York	28.82½	28.35	27.62½	25.70
Antimony, Hallett, New York	7.00	7.00	7.00	6.25
Nickel, New York	40.00	40.00	40.00	40.00
Tin Plate, Domestic, Bessemer, 100 pounds, New York	3.49	3.49	3.49	3.99

Chicago.

FISHER BUILDING, October 19, 1904.—(By Telegraph.)

The comparative apathy that has again seized buyers of finished products has disappointed the sanguine ones, who were looking for an immediate boom. Still there is an element of strength in the present situation—namely, that sellers as a rule are not sufficiently anxious for business to lead them to cut prices. The result of this situation is a repetition of the familiar condition in which buyers and sellers refuse to come together, either as to price or time of delivery. The Pig Iron situation is unchanged since last week, except that the Southern product is more completely bottled than it was even then. While sellers are predicting in awe-struck whispers a Birmingham basis ranging all the way from \$12 to \$16 before January, Northern buyers profess no alarm, and, on the contrary, express the opinion that as soon as the Southern Coal miners' strike is broken and normal labor conditions resumed in that territory there will be a surplus of Iron produced in the South, with a consequence that producers will very soon lose the present concert of action, and even lower prices than now prevail will be the result. The middle ground between these two extremes is the idea that Southern Iron may be able to maintain a price at a basis of \$10 or even a little higher, providing assistance is furnished by Northern producers in the way of an advance in their product. It would seem that now is the opportunity for Northern furnaces to advance their prices, which they claim have been held down below a profitable basis by the competition of low priced Southern Iron, but at this juncture one Northern producer, who has been out of the market for some months for repairs, is about to enter with about 200 tons daily capacity and empty order books—not a very propitious situation for a price advance. Plate business is extremely quiet here. Structural Shapes are little if any more active than for some months, but the

tone is thought to be a little less discouraging. Business in Billets and Standard Section Rails is very quiet, while Light Sections and Track Supplies are fairly active. Sheets are in good demand, but the demand is not yet equal to the ability of the mills to supply and prices are still abnormally low. Reports are that specifications on Bars, both Iron and Steel, are excellent, and that a good business is also being done in Bands and Hoops. The increment in demand for Iron Bars is due partially to the revival of car building industries. The Pullman Company is asking for prices on supplies, mainly Structural Shapes and Plates, for 2000 box cars for the C., B. & Q., and for 1000 Ingoldsby hopper dump cars. The Western Car & Foundry Company has an order for 1500 box cars for the New York Central, and other large orders aggregating at least another 1500 cars. Haskell & Barker, at Michigan City, Ind., are said to be very busy. Specifications on Merchant and Agricultural Steel are good. Favorable reports are received from the leading maker of Pipe and Boiler Tubes, but it is known that the official prices are being shaded somewhat by independents. Cast Pipe and Old Materials are about stationary, as compared with last week. There is a somewhat stronger tone to the Coke market in sympathy with the strength shown in Iron circles, but prices have not actually advanced, as compared with those quoted last week.

Pig Iron.—Inquiry from all mill agents and brokers in Chicago representing Southern Iron producers is met with the same information, that their furnaces have no Iron to sell for this year, and refuse to quote prices for next year. Under these circumstances we might properly leave all Chicago quotations on Southern Iron blank, but for the sake of having some basis of comparison in future we repeat last week's quotations on the \$10 basis. Southern producers have evidently made up their minds that the time has come for them to force up prices on their Iron, and hints are already going out that Iron might be obtained at \$12, Birmingham basis, but that prices are likely to go up to \$16 before long. Of course, it would be out of the question to make sales at such figures north of the Ohio River unless Northern producers should see fit to advance their prices in the same ratio, a proceeding that at the present writing looks to be quite improbable. However, there is a stronger tone in Northern Irons, and producers instead of advancing the price immediately are adopting the policy of curtailing tonnage as much as possible, giving their consumers only enough to keep them going from month to month at present prices, the hope being that a stimulated demand may raise the prices early next year to a point where larger profits will accrue from the hand to mouth method of distribution than would result in making contracts now covering extended period at advance of even \$1 a ton over present prices. It is stated positively that one Birmingham producer of Basic made a sale of a large tonnage of Basic Iron for delivery the first quarter of 1905 at \$12, Birmingham, but that the Iron did not go into Chicago territory. Southern producers seem to be willing to sacrifice their Northern business, but are putting the screws to consumers in their own territory who are too far South to secure any relief from furnaces north of the Ohio River. We quote:

Lake Superior Charcoal.....	\$15.25 to \$15.75
Northern Coke Foundry, No. 1.....	14.00 to 14.50
Northern Coke Foundry, No. 2.....	13.50 to 14.00
Northern Coke Foundry, No. 3.....	13.00 to 13.50
Northern Scotch, No. 1.....	14.50 to 15.00
Ohio Strong Softeners, No. 1.....	14.80 to 15.05
Ohio Strong Softeners, No. 2.....	14.30 to 14.55
Southern Silvery, according to Silicon.....	14.40 to 14.60
Southern Coke, No. 1.....	14.15
Southern Coke, No. 2.....	13.65
Southern Coke, No. 3.....	13.40
Southern Coke, No. 4.....	13.15
Southern Coke, No. 1 Soft.....	14.15
Southern Coke, No. 2 Soft.....	13.65
Southern Gray Forge.....	12.90
Southern Mottled and White.....	12.65
Malleable Bessemer.....	13.50 to 14.00
Standard Bessemer.....	14.25 to 14.75
Jackson County and Kentucky Silvery, 6 to 10 per cent. Silicon.....	17.80 to 19.30
Alabama Basic.....	13.65
Virginia Basic.....	13.65 to 14.15

Billets.—An effort has been made by Billet producers acting in concert to stimulate business by raising prices. Accordingly on October 14 a notice was sent to the trade announcing an advance of \$2 a ton on Open Hearth Forging Billets, making the new prices at Pittsburgh \$21.50 per gross ton for 4 x 4 and larger up to but not including 10 x 10, with \$2 extra for 10-inch and larger, and the same extra for Axle Billets and Billets smaller than 4 x 4. To these prices actual freight is added for delivered price, making Chicago prices as follows: 4 x 4 and larger up to but not including 10 x 10, \$24.50; 10 x 10 and larger, \$26.50; less than 4 x 4, \$26.50. Some makers charge \$4 above the 10-inch price for Billets 20 inches and larger. The renewed activity in shipbuilding on the Great Lakes, and car building in Western car works, together with a general betterment in business, is stimulating the demand for Billets quite appreciably.

Rails and Track Supplies.—There will, of course, be but little business done in Standard Section Rails until the new price is determined by the Rail makers, but meanwhile

some business is being done on the basis of \$28 at mill in 500-ton lots and greater. Demand for Light Section Rails at \$20 to \$22 at mill seems to improve weekly, and there is also an improved trading done in Track Supplies. Spikes and Splices are active, with prices unchanged, Bars being quoted at from 1.30c. to 1.35c.; Spikes at from 1.60c. to 1.65c., in car lots; Track Bolts, 2.20c. to 2.25c., base, from mill, with Square Nuts, and 10c. to 15c. extra for Hexagon Nuts. Store prices on Angle Bars, Track Bolts and Spikes are about 15c. above mill prices.

Structural Material.—While actual orders for Structural Material have not increased, inquiry is large and the outlook more promising than it has been. The leading local independent producer of Structural Shapes of the lighter weights reports an increased demand, particularly from car builders, and also an improvement in Structural and Bridge specifications. Prices are being shaded by independents on the lighter Structural Sections to a point where Pittsburgh prices are named for Chicago delivery when necessary to secure desirable business. Railroads show a little more inclination to buy than they have for some months, but the improvement is not at all marked. Official prices are unchanged, as follows: Beams and Channels, 3 to 15 inches, inclusive, 1.56½c. Chicago; Angles, 3 to 6 inches, ¼-inch and heavier, 1.56½c.; Angles, larger than 6 inches on one or both legs, 1.66½c.; Beams, larger than 15 inches, 1.66½c.; Zees, 3 inches and over, 1.56½c.; Tees, 3 inches and over, 1.61½c., with the usual extras for cutting to exact lengths, punching, coping, bending or other shop work. Store prices on Structural Materials are 1.80c. to 1.90c. for Angles, Beams, Channels and Zees, base sizes, with 1.90c. to 2c. for 18, 20 and 24 inch Beams; Tees, 1.85c. to 1.95c. These prices are for either random lengths or cut to lengths.

Plates.—The Plate business is still one of the quietest spots in the whole Iron market in the Chicago territory, and while prices are not being shaded by association mills as far as can be learned, the demand is extremely unsatisfactory. The resumption of shipbuilding on the lakes and the large orders now being placed are encouraging signs, even though they do not mean a great increase in the local territory. Association prices are unchanged, as follows: Tank quality, ¼-inch and heavier, wider than 24 and up to 100 inches wide, carloads, Chicago, 1.56½c.; 3-16 inch, 1.66½c.; Nos. 7 and 8 gauge, 1.71½c.; No. 9, 1.81½c.; Flange quality, any width up to 100 inches, 1.66½c.; Sketch Plates, in Tank quality, 1.66½c.; in Flange quality, 1.76½c. Store prices on Plates are as follows: Tank Plates, in widths up to 100 inches, ¼-inch and heavier, 1.75c. to 1.85c.; 3-16 inch, 1.85c. to 1.95c.; Nos. 8 and 10, 1.90c. to 2c.; Nos. 12 and 14, 2c. to 2.10c.; No. 16, 2.10c. to 2.20c.; Flange quality, 25c. per 100 lbs. extra.

Sheets.—Inquiry for Sheets is certainly large, but prices continue to be extremely low. In fact, a buyer who has a large tonnage of desirable size should get prices 10c. lower than the schedule quoted below, which represents the ordinary car lot business on mixed specifications. With this explanation prices are unchanged, as follows, in carload lots: Nos. 9 and 10, 1.66½c.; Nos. 11 and 12, 1.71½c.; Nos. 13 and 14, 1.76½c.; Nos. 15 and 16, 1.86½c.; Nos. 18 to 20, 2.01½c.; Nos. 22 to 24, 2.06½c.; Nos. 25 and 26, 2.11½c.; No. 27, 2.16½c.; No. 28, 2.26½c.; No. 29, 2.36½c.; No. 30, 2.46½c. Store prices are: Nos. 8 and 10, 1.90c. to 2c.; No. 12, 1.95c. to 2.05c.; No. 14, 2c. to 2.10c.; Nos. 15 and 16, 2.10c. to 2.20c.; Nos. 18 and 20, 2.20c. to 2.30c.; Nos. 22 and 24, 2.30c. to 2.40c.; Nos. 25 and 26, 2.35c. to 2.45c.; No. 27, 2.45c. to 2.55c.; No. 28, 2.55c. to 2.60c.; No. 29, 2.70c. to 2.80c. Galvanized Sheets show no change since last week, being offered at from 80 and 7½ to 80 and 10 discount, Pittsburgh, carload lots and larger, and selling from store here at 75, 10 and 5 and 75, 10 and 7½ discount from list.

Bars.—The leading producer of Steel Bars professes to be highly pleased with the number and quantity of specifications received on contracts, and states also that a fair amount of new business is being booked. There is an encouraging increase also in the demand for Iron Bars, due largely to the increase in the car building business in the West. The following are current prices: Soft Steel Bars and Bands, car lots, Chicago, 1.46½c., base, half extras; smaller lots, 1.51½c., with the usual extras for less than a ton of a size; Soft Steel Channels, Angles and Tees, Bar sizes, 1.56½c.; Soft Steel Hoops, 1.71½c. rates, full extras; Bar Iron, 1.35c. to 1.40c., base, half extras. Store prices on Soft Steel Bars, Bands, Angles, Channels and Tees are reduced 5c., in line with the reduction from the mill, making present store prices at Chicago warehouse: Soft Steel Bars and Bands, 1.65c. to 1.70c., base, half extras; Soft Steel Angles, Channels and Tees, 1.75c. to 1.80c., base, half extras; Iron Bars, 1.70c. to 1.75c., base, full extras; Steel Hoops, 2.10c. rates, full extras.

Merchant Steel.—Producers of these lines are encouraged by an appreciable increase in the number and quantity of specifications. Prices are maintained firmly well on most lines, but Shafting prices are understood to be shaded frequently by an extra 5 per cent. discount off, if

not more. We quote: Open Hearth Spring Steel to general trade, 1.85c. to 1.90c.; Smooth Finished Machinery Steel, 1.71½c. to 1.76½c.; Smooth Finished Tire, 1.66½c. to 1.71½c.; Flat Sleigh Shoe, 1.51½c. to 1.56½c.; Concave and Convex Sleigh Shoe, apparently unchanged at 1.66½c. to 1.71½c.; Cutter Shoe, apparently unchanged at 2.25c. to 2.30c.; Toe Calk Steel, 2.01½c. to 2.06½c.; Crucible Tool Steel, 6½c. to 8c.; special grades of Tool Steel, 13c. and up; Shafting at 52 per cent. in car lots and 47 per cent. in less than car lots; Railway Spring, carload lots, 1.71½c. to 1.86½c., with reductions for larger quantities.

Merchant Pipe.—The leading producer reports that business is as good as could be expected both in the way of specifications on contract and on new business.

Boiler Tubes.—Business continues to be quiet from mill and fairly active from store. Prices on both Iron and Steel Tubes are shaded somewhat, the following being the official less than car lot schedule, with two-point better discounts named on car lots:

	Steel.	Iron.	Seamless Steel.
1 to 1¼ inches.....	46.35	41.35	52.35
1½ to 2¼ inches.....	58.35	41.35	40.35
2½ inches.....	60.35	46.35	43.35
2¾ to 5 inches.....	66.35	53.35	{ up to 4 in. 50.55
6 to 13 inches.....	58.35	41.35

Store business has some elements of encouragement in it, and the following price-list would prevail for ordinary small lots from store, with additional inducements for round lots:

	Steel.	Iron.	Seamless Steel.
1 to 1¼ inches.....	42½	37½	40
1½ to 2¼ inches.....	52½	35	37½
2½ inches.....	55	37½	40
2¾ to 5 inches.....	62½	47½	47½
6 inches and larger.....	52½	35	..

Cast Iron Pipe.—This has been a colorless week, but a fair pickup business is still in evidence. Prices are still on the basis of \$25.50 for 4-inch Water Pipe, \$26.50 for 6-inch and heavier, and \$1 extra for Gas Pipe. These prices, however, will be shaded on very large lots.

Old Material.—The upward tendency still prevails, buying being done largely by dealers who expect to make a profit by storing their Scrap and selling it later on. Consumers buy only what they must have, maintaining, in spite of each weekly advance, that the Scrap market is a speculative bubble that soon must burst. About 2000 tons are offered this week by the Rock Island and affiliated roads, but it is too early to determine the range of bids made for this material. We advance Old Car Wheels, 50c.; Heavy Melting Steel, 50c., and No. 1 Dealers' Forge, 50c. Wrought Pipe and Flues are considered weak at the prices quoted, but not sufficiently so to warrant a reduction in price. Present prices are as follows, per gross tons:

Old Iron Rails.....	\$16.50 to \$16.75
Old Steel Rails, 4 feet and over.....	12.25 to 12.50
Old Steel Rails, less than 4 feet.....	11.00 to 11.25
Heavy Relaying Rails, subject to inspection	20.50 to 21.50
Heavy Relaying Rails, for side tracks..	18.00 to 20.00
Old Car Wheels.....	12.00 to 12.50
Heavy Melting Steel Scrap.....	11.00 to 11.50
Mixed Steel.....	8.50 to 9.00

The following quotations are per net ton:

Iron Fish Plates.....	\$13.25 to \$13.75
Iron Car Axles.....	17.00 to 17.50
Steel Car Axles.....	14.50 to 15.00
No. 1 Railroad Wrought.....	12.25 to 12.75
No. 2 Railroad Wrought.....	11.25 to 11.75
Shafting	12.50 to 13.00
No. 1 Dealers' Forge.....	9.50 to 10.00
Wrought Pipes and Flues.....	9.00 to 9.50
Iron Axle Turnings.....	7.25 to 7.75
Soft Steel Axle Turnings.....	7.25 to 7.75
Machine Shop Turnings.....	7.00 to 7.50
Cast Borings.....	5.00 to 5.50
Mixed Borings, &c.....	5.00 to 5.50
No. 1 Mill.....	7.00 to 7.50
Country Sheet.....	5.00 to 5.50
No. 1 Rollers, cut to Sheets and Rings.	8.50 to 9.00
No. 1 Cast Scrap.....	11.00 to 11.50
Stove Plate and Light Cast Scrap.....	9.00 to 9.50
Railroad Malleable.....	9.75 to 10.00
Agricultural Malleable.....	9.25 to 9.75

Metals.—Further advances in prices are as follows: Spelter is ¼c. higher, being quoted now at 5½c. to 5¼c. in car lots, and 5½c. to 5¼c. in smaller lots; Casting Copper has advanced ¼c., making it 13c. to 13¼c., with Lake at 13½c. to 13¾c. Pig Tin is ½c. higher, present quotations being 29½c. to 30c. Pig Lead is unchanged at 4.20c. for 50-ton lots, 4.30c. for car lots and 4.50c. for small lots. Sheet Zinc is stationary at 6¼c. for car lots of 600-lb. casks and 6½c. for smaller lots. Old Metals also have sharply advanced, present prices being as follows: Copper Wire and Heavy, 12c. to 12¼c.; Copper Bottoms, 10½c. to 10¾c.; Copper Clips, 11½c. to 11¾c.; Red Brass, 10½c. to 10¾c.; Red Brass Borings, 8½c. to 8¾c.; Yellow Brass, Heavy, 7¾c. to 8c.; Yellow Brass Borings, 6¾c. to 7c.; Light Brass, 5¾c. to 6c.; Lead Pipe, 4c.; Tea Lead, 3¾c.; Zinc, 4¼c.; Pewter, No. 1, 18½c.; Block Tin Pipe, 25c.

Coke.—Much the same deadlock between buyers and sellers in Iron exists in the Coke market. Producers are making a determined effort to advance prices and to prevent

consumers from covering their needs far into the future, but Coke which is claimed to be first-class 72-hour Connells-ville product is still obtainable at from \$4.50 to \$4.65, Chicago, equivalent of \$1.85 to \$2 at the ovens. Some operatives claim that \$2 at the ovens is their minimum and endeavor to secure \$2.25, but takers are few, if any, at the higher price, unless extended delivery is granted. Wise County, Va., Coke is less in evidence here than formerly, owing to the demand from Southern Iron makers, but is still obtainable at \$4.25, Chicago, or a little below. Furnace Cokes range about 50c. a ton lower than these Foundry Coke prices.

Philadelphia.

FORREST BUILDING, October 18, 1904.

There has surely been something doing during the past week, although it has for the most part been in Pig Iron. Buyers appeared to take the notion to get in at once, and not to be thwarted by a few cents per ton advance. The result has been heavier sales in one week than at any time during the year. Such a movement was not altogether unexpected, but it was on a larger scale than expected, and higher prices were paid than were generally looked for. The immediately determining influence was the statistical report published in last week's issue of *The Iron Age*, combined with a feeling that prices were too low to continue on the basis ruling during the past several weeks. When impressions of this kind become fixed it does not require much to set things moving, and move they did at a surprising rate. Even at the advance prices are not high, but without some change in the underlying conditions they are high enough for the present. The heaviest purchases and the greatest advance has been in Basic Iron, which, however, was disproportionately low, but at to-day's prices it is fairly in line with the general market. In regard to movements in the near future opinion is rather opposed to any additional advance until the market quiets down a little. There is always some danger in sudden movements, and while there is little doubt that more Pig Iron will be wanted than was figured on two or three months ago, it is almost certain that the present output will be ample for all requirements during 1904, with perhaps a fairly good surplus to commence with in 1905. False starts have a bad influence and do much to retard a full and complete return to normal conditions. It unsettles prices, unsettles costs, and is misleading as regards estimates of the quantity of Iron likely to be required for consumption. The current output may now be figured at approximately 1,400,000 tons per month, which is large enough, considering the season. Any material increase on that, it is believed, would be more than the market could take, while any advance on to-day's prices would surely stimulate a production in excess of the tonnage above named. Most of the large consumers of Pig Iron have closed for all the Iron they will need until February or March, so that after this week it is expected that buying will begin to slacken up again. Some close observers are inclined to the opinion that the movement is partly speculative. It may be and probably is a safe speculation at the prices paid on the recent purchases, but the danger will be in carrying it too far. It is not clear that consumers of Pig Iron have made very large additions to their order books, without which it would be difficult to maintain even to-day's prices. There is undoubtedly some improvement, but to keep pace with that in Pig Iron a great deal more business must be secured than has yet been entered. The Locomotive Works have entered orders for something over 100 locomotives during the past few days; the bridge shops have also made encouraging gains, while the building interests have a very favorable outlook; so that some progress is being made along the entire line. But, as we said before, the chief activity has been in Pig Iron, which has gained from 25c. to 50c. per ton over last week's prices and has a strong undertone, which is likely to continue, in any case, temporarily.

Pig Iron.—The spirited movement to which we have already called attention is an agreeable change from the monotony of the summer months. To what extent it represents a change in actual conditions is difficult to determine, but it certainly represents a marked change in the attitude of buyers. This is doubtless warranted as regards prices, which have been too low, but whether it represents an increase in business to the same extent is open to question. There is a good prospect for next year, and even 1904 bids fair to close with much better conditions than seemed probable a few weeks ago, but to get away with nearly 1,400,000 tons of Pig Iron monthly during the winter is a big proposition, especially when it is remembered that the four preceding months averaged only about 75 per cent. of this tonnage, leaving stocks on October 1 10,000 tons larger than on June 1. It is quite impossible to say with any degree of certainty what the outcome will be, but, judging from the past, there may be some danger in taking it as a sure indication of still greater activity in the near future. Twenty-five per cent. increase in the production of Pig Iron means a great deal and will mean a great deal more two or three months hence unless there is an increase in the demand for finished prod-

ucts, which is not in sight yet. There is a strong probability that business will show a gradual improvement, but there are no such pressing needs as were met with during 1899 to 1902. The railways were compelled to buy then, but there is no such pressure now. They will buy some, though probably not heavily, but in any case it will be a matter of expediency rather than of necessity, hence there should not be too much reliance on the railroads as large buyers. Moreover, the capacity for production in all lines is much greater than it has ever been before, so that anything like scarcity or high prices would probably be very short lived, although the present output, at present or slightly higher prices, should meet all requirements during 1904, after which there will be ample time for new adjustments. Sales have been on a large scale, probably 30,000 to 35,000 tons, Basic, also large sales of mill and foundry Irons. Sales last week were made at \$12.90 to \$13 for Basic and this week \$13.25 has been paid for 5000-ton lots, but \$13.50 is now a firm quotation, while some ask still higher figures. Mill Irons are about 50c. higher than last week; Foundry grades 25c. to 50c. dearer, the range to-day for Philadelphia and nearby deliveries being about as follows:

No. 1 X Foundry.....	\$15.00 to \$15.25
No. 2 X Foundry.....	14.50 to 14.75
No. 2 Plain.....	14.00 to 14.25
Standard Gray Forge.....	13.50 to 13.75
Ordinary Gray Forge.....	13.00 to 13.25
Basic.....	13.50 to 13.75
Low Phosphorus.....	18.25 to 18.50
Malleable Iron.....	14.50 to 14.75

Steel.—There is a much better demand for Steel and some good sized lots have been taken at full prices. Mills are comfortably supplied with orders, and prospects for the next few weeks are decidedly encouraging. About \$22 is quoted for ordinary Steel, and concessions from that price would not be readily granted.

Plates.—There is no special movement in Plates, but there is a satisfactory run of orders and prospects are considered much better than they have been for a long time past. Car and locomotive shops are buying more freely, and all lines are increasing their orders more or less. Prices are unchanged, but with the advance in raw materials buyers realize that present quotations are a perfectly safe proposition. Prices are as follow:

	Carload. Cents.	Part carload. Cents.
Tank, Bridge and Boat Steel, rectangular Plates, 24 inches wide and under 1.43 1/2	1.43 1/2	1.48 1/2
Tank, Bridge and Boat Steel, over 24 inches wide.....	1.53 1/2	1.58 1/2
Flange or Boiler Steel.....	1.63 1/2	1.68 1/2
Marine, A. B. M. A. and Commercial		
Fire Box Steel.....	1.73 1/2	1.78 1/2
Still Bottom Steel.....	1.83 1/2	1.88 1/2
Locomotive Fire Box Steel.....	2.03 1/2	2.08 1/2
The above are base prices for 1/4-inch and heavier. The following extras apply:		
3-16 inch thick.....	\$0.10 per lb. extra.	
Nos. 7 and 8 W. G.....	.15	"
No. 9 W. G.....	.25	"
Plates over 100 to 110 inches.....	.05	"
Plates over 110 to 115 inches.....	.10	"
Plates over 115 to 120 inches.....	.15	"
Plates over 120 to 125 inches.....	.25	"
Plates over 125 to 130 inches.....	.50	"
Plates over 130 inches.....	1.00	"
All sketches (excepting straight taper plates, varying not more than 4 inches in width at ends, narrowest end being not less than 30 inches).....	.10	"
Complete Circles.....	.20	"
All the above f.o.b. Philadelphia.		

Structural Material.—Without any orders of special note, the mills have been getting considerable work during the past two or three weeks and are now better situated than they have been for months past. The orders are not large individually, but they aggregate a considerable tonnage. Prices as last quoted—viz.: Beams, Channels and Angles, 1.53 1/2c. to 1.65c., according to specifications, and small Angles, 1.50c. to 1.55c.

Bars.—This department seems to be almost as dull as ever. The demand is not much better than it was several weeks ago, and with the increased cost of production it is almost impossible to squeeze out any margin of profit for the manufacturers. There is nothing in prospect to indicate immediate improvement, although on general principles the Bar trade will undoubtedly take its place in the line if business is really and truly going to be better. The price for either Iron or Steel Bars in carload lots is 1.43 1/2c., part carloads at the usual advance.

Sheets.—There is quite an active demand and applications are on file for large lots for forward delivery. Manufacturers are considering the propositions on their individual merits, but will be compelled to make some advances on recent quotations.

Old Material.—The market is in a decidedly nervous condition, as holders ask a great deal more than buyers say they can afford to pay, yet when they must have material they have to pay the price. It is a most difficult situation, but for the present sellers have full control. Exact figures cannot be given on a market of this kind, but the range for deliveries in buyers' yards is about as follows:

No. 1 Steel Scrap.....	\$13.00 to \$13.50
Old Steel Axles.....	16.50 to 17.50
Old Iron Axles.....	19.50 to 20.00
Old Iron Rails.....	16.50 to 17.50
Old Car Wheels.....	12.50 to 13.00
Choice Scrap, R. R. No. 1 Wrought.....	15.50 to 16.50
Machinery Scrap.....	12.50 to 13.00
Low Phosphorus Scrap.....	16.75 to 17.00
Wrought Iron Pipe.....	12.00 to 12.50
No. 1 Forge Fire Scrap.....	10.75 to 11.50
No. 2 Forge Fire Scrap, Ordinary.....	9.00 to 9.50
Wrought Turnings.....	9.00 to 9.50
Wrought Turnings, Choice Heavy.....	10.00 to 10.50
Cast Borings.....	7.25 to 7.50
Stove Plates.....	10.00 to 10.50

Cincinnati.

FIFTH AND MAIN STS., October 19, 1904.—(By Telegraph.)

Pig Iron.—The trend of the market during the past week has been onward and upward. Our quotations last week were 50c. higher than the week previous, and from what we can gather another advance of 50c. has been the record of the last few days. This applies to Southern Iron in particular, as it does not appear that the Northern product has kept pace with the movement in the South. So far as this territory is concerned Southern Iron is practically on the prohibitory list, as Northern Iron can be placed at much less cost within the lines mentioned. Quite a number of reasons have been advanced as to the cause of the sudden activity, the most plausible being the great shortage of Southern Iron in stock at the present time. Reports show that in spite of the increased production the tonnage of Merchant Iron has very materially decreased, showing that consumption is decidedly on the increase. Many of the furnaces of the South are refusing to quote at any price, and a number of the remainder deem it useless to name a figure, as they practically have no stock on hand. Inquiries are good, both for the balance of this year and reaching into the first half of next. Numerous sales have been made in tonnage ranging anywhere from a carload to 500 tons, but there is no report of any round lots having been purchased. Some grades of Iron are reported as being in very limited supply for the balance of the year's delivery, such as No. 2 Soft and No. 2 Foundry. Northern Iron is quoted at \$12, furnace, with an apparent effort being made to place same on a \$12.50 basis. We note one inquiry from Southern Ohio for about 1600 tons of Northern No. 2, for delivery during the first quarter of next year. Also one from a Central Ohio concern for 500 tons of Southern Iron wanting same delivery. The Cast Iron Pipe people are known to be in the market for almost any tonnage that they can secure, both as regards immediate and long time delivery. Freight rates from Hanging Rock district to Cincinnati, \$1.15, and from Birmingham, \$2.75. We quote, f.o.b. Cincinnati, as follows:

Southern Coke, No. 1.....	\$13.50 to \$13.75
Southern Coke, No. 2.....	13.00 to 13.25
Southern Coke, No. 3.....	12.50 to 12.75
Southern Coke, No. 4.....	12.25 to 12.50
Southern Coke, No. 1 Soft.....	13.50 to 13.75
Southern Coke, No. 2 Soft.....	13.00 to 13.25
Southern Coke, Gray Forge.....	12.00 to 12.25
Southern Coke, Mottled.....	11.75 to 12.00
Ohio Silvery, No. 1.....	16.15 to 16.65
Lake Superior Coke, No. 1.....	13.65 to 14.15
Lake Superior Coke, No. 2.....	13.15 to 13.65
Lake Superior Coke, No. 3.....	12.65 to 13.15

Car Wheel and Malleable Irons.

Standard Southern Car Wheel.....	\$16.25 to \$16.75
Lake Superior Car Wheel and Malleable	15.80 to 16.30

Coke.—Business in this particular line is reported to be better than for some time past. There is a growing demand and the market is strong. Contracts running into next year are being made and the outlook is exceedingly bright. We quote the best grades from \$1.90 to \$2.15, f.o.b. ovens.

Plates and Bars.—The demand for Finished Material is far below normal conditions, the greatest amount of activity being apparent in the demand for Bars and Tires. This is the season when manufacturers contract for their year's supply of Tires, and sales of this class of material are reported as showing quite a substantial increase. We quote, f.o.b. Cincinnati, as follows: Iron Bars, in carload lots, 1.50c., with half extras; the same in smaller lots, 1.70c., with full extras; Steel Bars, in carload lots, 1.43c., with half extras; the same in smaller lots, 1.65c., with full extras; Base Angles, 1.53c., in carload lots; Beams and Channels, in carload lots, 1.53c.; Plates, 1/4-inch and heavier, 1.53c., in carload lots; in small lots, 1.80c.; Sheets, 16-gauge, in carload lots, 2.05c.; smaller lots, 2.60c.; 14-gauge, in carload lots, 1.95c.; in smaller lots, 2.50c.; Steel Tire, 3/4 x 3-16 and heavier, 1.63c., in carload lots.

Old Material.—All dealers report very satisfactory condition of affairs. Prices are reported to be unchanged. We quote dealers' prices, f.o.b. Cincinnati, as follows: No. 1 Railroad Wrought Scrap, \$10.50 to \$11.50 per net ton; No. 1 Cast Scrap, \$10 to \$10.50 per net ton; Iron Rails, \$14 to \$14.50 per gross ton; Steel Rails, rolling lengths, \$10 to \$11 per gross ton; Relaying Rails, \$18 to \$19 per gross ton; Iron Axles, \$14 to \$15 per net ton; Car Wheels, \$10 to \$10.50 per gross ton; Heavy Melting Scrap, \$9.50 to \$10.50 per gross ton; Low Phosphorus Scrap, \$11.50 to \$12 per gross ton.

Pittsburgh.

PARK BUILDING, October 19, 1904.—(By Telegraph.)

Pig Iron.—Conditions in the Pig Iron market have undergone a radical change in the past ten days, and instead of being a buyers' market the advantage is now distinctly on the side of the sellers. Inquiries are out for a heavy tonnage of Bessemer and Foundry Iron, on which the furnaces are quoting considerably higher prices. Standard Bessemer Iron to-day for balance of the year shipment is \$12.25 minimum, Valley furnace, with some sellers quoting as high as \$12.50 to \$12.75, at furnace. One large consumer placed a contract last week for 7000 tons of Standard Bessemer Iron at \$12.25, Valley furnace, and would have bought more if it could have been had. For delivery in first quarter of next year \$12.50, at furnace, is the minimum quotation, and some sellers ask \$12.75 to \$13, but no business has yet been done at these prices. In Foundry Iron the withdrawal of the leading Southern producers from the market as sellers, on account of the coal strike, has had a sympathetic effect on Northern makers of Foundry Iron, who are either entirely out of the market as sellers or else are asking much higher prices. Within the last day or two Northern No. 2 Foundry Iron has sold at \$12.50, at Valley furnace, or \$13.75, Pittsburgh. Two or three of the larger stacks in the Valleys that make Foundry Iron are shut down, causing a scarcity in supply, and the market is very firm. There have been some heavy purchases of Forge Iron, one leading consumer buying 8000 tons, and Northern brands of Forge are now very firm on the basis of \$12.35 to \$12.50, Pittsburgh, with some sellers quoting their Iron at \$12, Valley equal to \$12.85, Pittsburgh. The consumption of Iron at the present time seems to be ahead of production, and the supply in the hands of the furnaces is very limited. The market all round is exceedingly strong, and predictions are made of still higher prices. A report is current that the United States Steel Corporation is in the market for a round tonnage of Bessemer Iron, but this is not confirmed and is not believed to be true. Speculative buyers have appeared and are willing to pay present prices for Iron and store it. It is also reported that the Lackawanna Steel Company is in the market for 40,000 tons of Standard Bessemer Iron for its Steel works at Buffalo, New York.

Steel.—The Steel market is exceedingly strong, and while the tonnage in Billets and Bars that is being sold is only moderate, yet we are advised that the mills are adhering rigidly to official prices. Reports of slight shading in prices by a few of the outside mills are not confirmed, but if Steel is being offered at less than official prices the tonnage is small.

Merchant Pipe.—Owing to the heavy advance in Pig Iron and the general upward tendency in prices of Finished Iron and Steel, together with a good demand, the National Tube Company has lowered discounts on Merchant Pipe one point, which is equal to an advance of about \$2 a ton. The independent mills have also made the same advance in prices and the Merchant Pipe market to-day is on a very firm basis, with a large tonnage being booked by the mills.

(By Mail.)

Genuine activity is prevailing in nearly all departments of the Iron trade, especially in Pig Iron, demand for which is very heavy and prices for which are moving upward. In fact, the Pig Iron market has about reached the point where producers are not anxious to take on more tonnage, but are disposed to hold their Iron for higher figures. The Bessemer Pig Iron Association, which controls 16 furnaces in the two Valleys, has set its price at \$12.25, Valley furnace, for Bessemer Iron, for balance of this year's delivery and \$12.50 for first quarter of next year. Some sellers are asking higher prices and are quoting \$12.50 for prompt Bessemer Iron and \$12.75 for forward delivery. Basic Iron is in good demand, but is offered at 15c. to 25c. a ton less than Bessemer. Demand for Foundry Iron is very active and prices are strong, with a decided upward tendency. The same is true of Forge Iron, for which there is an active demand with a limited supply, and it is held firmly at \$12.25, Pittsburgh, with some sellers quoting \$12.50 and higher. It has been some months since the Pig Iron market has been as active as it is at present, and there is every indication that with the heavy inquiries in the market and the independent attitude of sellers, prices are almost certain to further advance. The Steel market continues firm, but only a limited tonnage is changing hands, consumers preferring not to contract ahead.

In Finished Iron and Steel there is increasing activity every day and demand is heavier than for months. This is particularly true of Plates and Wire products, while Iron and Steel Bars are also more active. The leading Pipe interest has made a revision in discounts, changing them one point, which makes an advance of about \$2 a ton.

The Coke and Scrap trades are also very active, the drought in the Connellsville region interfering to some extent with operation of ovens, and a few plants have been compelled to close down or else run short handed for want of water.

Ferromanganese.—Some heavy sales of Ferro have been made in the past two weeks, several leading consumers covering their requirements for a long time ahead and at very low prices. These low prices are due to the fierce competition between domestic, English and German makers, with the result that 80 per cent. Ferro, both foreign and domestic, has been sold below \$40 a ton, delivered, for very large lots.

Wire Rods.—There is more inquiry for Rods than for some time and prices are very firm, with some sellers asking higher figures. We quote Bessemer and Open Hearth Rods at \$26 to \$26.50 for Pittsburgh delivery.

Skelp.—The tone of the Skelp market is distinctly firmer and some of the mills are asking higher prices. We note a sale of 2000 tons of Grooved Iron Skelp, ordinary widths, on the basis of about 1.40c., Pittsburgh. We quote Grooved Iron Skelp at 1.40c., Sheared Iron Skelp, ordinary widths and gauges, at 1.45c., while for narrow sizes and light gauges Sheared Iron Skelp has sold as high as 1.55c. Grooved Steel Skelp is held at 1.30c. and Sheared at 1.35c. to 1.40c.; all these prices are f.o.b. cars, delivered to mills in the Pittsburgh district.

Steel Rails.—Domestic demand for Steel Rails is quiet, but a good deal of tonnage is being booked for foreign delivery in competition with European mills. The United States Steel Products Export Company, the affiliated interest of the United States Steel Corporation, has taken some good sized contracts for foreign Rails, one for 18,000 tons for shipment to Corea. Demand for Light Rails is very active and the Light Rail mill at Edgar Thomson Works is now running double turn. Report has it that the United States Steel Corporation will build a Steel Rail mill at Peterborough, Ontario, Canada, to take care of its Canadian trade. We quote Light Rails at \$19.50 to \$22, depending on weight.

Structural Material.—The Steel for the Wabash freight depot in this city has been placed with a local interest and amounts to about 5000 tons. The American Bridge Company will erect the building, work on which will start in a short time. No other large jobs are in sight in this locality, but a fair amount of small work is being placed. Indications are that next year will be exceedingly active in the Structural trade, as many large jobs have been held over from this year. We quote: Beams and Channels, up to 15-inch, 1.40c.; over 15-inch, 1.50c.; Angles, 3 x 2 x 1/4 inch thick up to 6 x 6 inches, 1.40c.; Angles, 8 x 8 and 7 x 3 1/2 inches, 1.50c.; Zees, 3-inch and larger, 1.40c.; Tees, 3-inch and larger, 1.45c. Under the Steel Bar Card, Angles, Channels and Tees under 3-inch are 1.40c., base, for Bessemer and 1.45c., base, for Open Hearth, subject to half extras on the Standard Steel Bar Card.

Plates.—The Erie Railroad has placed a contract with the Standard Steel Car Company of this city for 2000 Steel freight cars, and which will require upward of 25,000 tons of Plates and small shapes. Other contracts for about 4000 Steel cars have been placed, and the Steel car shops, as well as the boat building interests, are again heavy buyers of Plates and have placed a very large tonnage in the past month. General demand from Boiler shops and other consumers is also better, and the Plate mills have entered more tonnage in the past month, it is claimed, than in the previous three months. All the Plate mills at the Homestead Steel Works are now on double turn. Prices are very firm and we quote: Tank Plate, 1/4 inch thick, 6 1/4 to 24 inches wide, 1.30c., base; over 24 inches wide and up to 100 inches in width, 1.40c., base, at mill, Pittsburgh. Extras over the above prices are as follows:

	Per pound extra.
Gauges lighter than 1/4-inch to and including 3-16-inch Plates on thin edges.....	\$0.10
Gauges No. 7 and No. 8.....	.15
Gauge No. 9.....	.25
Plates over 100 to 110 inches.....	.05
Plates over 110 to 115 inches.....	.10
Plates over 115 to 120 inches.....	.15
Plates over 120 to 125 inches.....	.25
Plates over 125 to 130 inches.....	.50
Plates over 130 inches.....	1.00
All sketches (excepting straight taper Plates, varying not more than 4 inches in width at ends, narrowest end being not less than 30 inches).....	.10
Complete Circles.....	.20
Boiler and Flange Steel Plates.....	.10
Marine, "A. B. M. A." and ordinary Fire Box Steel Plates.....	.20
Still Bottom Steel.....	.30
Locomotive Fire Box Steel.....	.50
Shell Grade of Steel is abandoned.	

TERMS.—Net cash 30 days. For anticipated payments a maximum discount may be allowed at the rate of 6 per cent. per annum, and for a longer time than 30 days interest shall be charged at the same rate per annum. Invoices paid within ten days from date thereof, discount of 1/4 of 1 per cent. is allowable. Pacific Coast not included.

Sheets.—Demand for Sheets for early shipment is quite heavy, and the mills are entering a good deal of tonnage. The feeling is that Sheets will not be any lower in price and that consumers will not make any mistake in placing

contracts for delivery ahead. Demand for Roofing Sheets is particularly heavy and also for the finer Electrical Sheets, and the leading mills are filled up for several months. Prices are very firm, but without change. We quote No. 26 Black Sheets, box annealed, one pass through cold rolls, at 1.95c.; No. 27, 2c.; No. 28, 2.10c., in carloads and larger lots. Galvanized Sheets are sold at 80 and 7½ per cent. off. We quote net prices of Galvanized Sheets as follows: Nos. 22 and 24, 2.59c.; Nos. 25 and 26, 2.77c.; No. 27, 2.96c., and No. 28, 3.14c. Jobbers charge the usual advance over these prices on small lots from store.

Iron and Steel Bars.—A good deal of new tonnage is being placed in both Iron and Steel Bars, and specifications on contracts from Implement makers are coming in at a good rate, giving the Bar mills more work than they have had in some months. Prices are firm and some low sellers of Iron Bars have advanced prices about \$1 a ton in the past week. We quote Bessemer Steel Bars at 1.30c., base; Open Hearth Bars at 1.35c., base, with the usual differentials for small lots. We quote Refined Iron Bars at 1.30c., f.o.b. Pittsburgh.

Railroad Spikes.—Demand is heavier than for some time, and, while prices are firmer, they are not as yet any higher. We quote Railroad Spikes \$1.55 in carloads and \$1.60 in less than carloads, per 100 lbs., f.o.b. Pittsburgh.

Hoops and Bands.—Demand for Steel Bands is fairly active, while tonnage in Steel Hoops is also larger than for some time. We quote Steel Bands at 1.30c., extras as per Steel card, and Steel Hoops at 1.55c., in carload lots, f.o.b. Pittsburgh.

Tin Plate.—Some heavy inquiries for Tin Plate from the canning interests are in the market and a good deal of tonnage is likely to be booked by the mills in the next month. Large consumers of Tin Plate are not disposed to place contracts unless prices are guaranteed against decline for the full term of delivery. We quote 100-lb. Cokes at \$3.25 net, f.o.b. Pittsburgh, terms 30 days, or 2 per cent. off for cash in 10 days.

Merchant Pipe.—The National Tube Company has received a contract for about 2000 tons of Oil Line Pipe, ranging in size from 4 to 14 inch, for shipment to India. The order was taken by the United States Steel Product Exports Company. General demand for Merchant Pipe is fairly satisfactory, but there has been some little unevenness in prices for some time. Under date of October 19 the National Tube Company sent out a new list of discounts, changing them one point, making an advance of about \$2 a ton. Discounts to consumers, effective from October 19, are as follows:

	Steel.		Iron.	
	Black.	Galv.	Black.	Galv.
	Per cent.	Per cent.	Per cent.	Per cent.
½ and ¾ inch.....	70	54	68	52
¾ and 1 inch.....	74	62	72	60
1 to 6 inches.....	78	68	76½	66½
7 to 12 inches.....	73	58	71½	56
Extra strong, plain ends,				
½ to ¾ inch.....	63	51	61	49
¾ to 1 inch.....	70	58	68	56
1 to 2 inches.....	66	54	64	52
Double extra strong,				
plain ends, ½ to 8				
inches.....	59	48	57	46

Merchant Steel.—The annual meeting of the Crucible Steel Company of America, the largest single producer of Merchant Steels, to be held in Jersey City to-morrow (Wednesday), is awaited with a good deal of interest. Net earnings of the company for the past year have been \$588,000, which is considered only a fair showing. The Shafting Association met last week and reaffirmed prices. Demand for Agricultural and Spring Steel is quite active, and the same is true of Shafting. Prices are firm, but without change, and we quote: Tire Steel, 1.50c.; Sleigh Shoe, flat, 1.40c.; Cutter Shoes, tapered and bent, 1.90c. to 2c.; Open Hearth Spring Steel, 1.85c. to 2c., depending on order. Crucible Tool Steel ranges from 5½c. to 7c. for ordinary grades and 8c. to 15c. for best grades. Cold Rolled Shafting is firmer at 52 per cent. off in carloads and 47 per cent. in less than carloads, delivered in base territory.

Spelter.—The market continues very quiet as regards sales, and prices have gone off slightly. We quote prime grades of Western Spelter at 5.03½c. to 5.05¼c., Pittsburgh.

Connellsville Coke.—Some little trouble is being experienced at some of the Coke plants in the Connellsville region over a shortage in supply of water, and which curtailed output last week to some extent. There is a heavy demand for both Furnace and Foundry Coke and prices are firm, with a probability of being higher. All the furnace interests are now anxious to contract for Coke for next year and a great many inquiries are in the market. The Coke producers feel that prices will be better and are disposed to go slow in the matter of making contracts, with the result that practically nothing has been done in this direction as yet. The total output of Coke in the Upper and Lower Connellsville regions last week was about 275,000 tons, a decrease over the previous week of about 6000 tons, due entirely to shortage of water at some of the plants. We

quote strictly Connellsville Furnace Coke at \$1.45 to \$1.50, at oven, but producers will not make contracts ahead at these prices. Some makers of Furnace Coke are holding their product at \$1.60 to \$1.65, at oven. We quote strictly Connellsville 72-hour Foundry Coke at \$2 to \$2.25, at oven. Main Line Furnace Coke is a little stronger and is held at \$1.35 to \$1.40, and Foundry at \$1.65 to \$1.75, at oven.

Iron and Steel Scrap.—Demand for all kinds of Scrap is decidedly more active and prices are firm and higher. We quote: Heavy Melting Stock, \$12.50; No. 1 Wrought Scrap, \$12.75 to \$13; Cast Iron Borings, \$7 to \$7.25; Bundled Sheet Scrap, \$10.50 to \$11; Iron Car Axles, \$18.50 to \$19; Old Rails, long pieces, \$13.25 to \$13.50; short pieces, \$11.75 to \$12; Wrought Turnings, \$9.75 to \$10, all in gross tons.

Cleveland.

CLEVELAND, OHIO, October 18, 1904.

Iron Ore.—There have been some further sales during the past week, although they have not been quite as heavy as those recorded a week ago. The best demand now is for non-Bessemer. The Bessemer Ores have about been sold up for this year. Prices are firm, contrary to expectations with the state of competition. The rates of carriage are advancing slightly, to offset which the sellers of Ore are trying to put a slightly better price on their product. The movement from the docks to the furnaces is increasing, indicating a larger consumption of Ore. This will increase materially after November 1, when it is expected a larger number of furnaces will be in operation.

Pig Iron.—The market still has the improved tone which was noted a week ago. Furnace owners, however, are getting cautious and do not care to sell as heavily as they have done. Base prices on Foundry continue at \$12.25 to \$12.50, in the Valleys, for No. 2 for immediate shipment. Furnaces generally are holding for \$12.50. A few furnaces, however, have been underselling the market because they have a surplus for which they are willing to take a little less. One lot of Pig Iron has been sold to a syndicate which is holding it on speculation, intending to peddle it out during the balance of the year. The market has also improved as touching the Southern Irons, the furnaces not yet willing to quote any price for even the first quarter of next year. The Northern furnaces are holding for \$12.50 to \$12.75 for the first quarter of next year, and are asking \$13 to \$13.25 for the second quarter. There has been also more strength in the Basic situation. Basic and Bessemer prices are \$12.25, in the Valleys, with better prices expected and asked for the first of next year.

Finished Iron and Steel.—The center of the situation this past week has been the better buying in Bar Iron and the advance to 1.30c. at the mill as a minimum and with 1.35c. to 1.40c. paid on lots which are not especially choice. This is the result of the rather sharp advance in the price of Scrap. The buying of Bar Steel has been slightly better, but there has not been the strength in it which would give an indication of breadth in the whole market. The recent display of strength in the Sheet market seems to have been disposed of. The good buying movement gave place to one with not quite so much steam behind it. The better tone to the market for Finished product is due largely to the improvement in the Structural and Plate trades, and this is evidently an immediate result of the spurt in shipbuilding. The demand for small boats has about passed away, and there is now a splendid demand for the largest sized ships. Most of those now being ordered are over 500 feet in length, requiring from 4000 to 5000 tons of Steel. There is a great deal of business yet ahead which has not even appeared on inquiry. Some better buying is seen in Billets.

Old Material.—The Scrap market has been advancing steadily. The dealers have not been bothered quite so much by the pressure of Material and have been able to advance prices without opposition. The market is now steady, with more strength seen in all prices. We revise slightly and quote, all gross tons: Old Steel Rails, \$12.50; Old Car Wheels, \$12.50; Heavy Melting Steel, \$12.50. All net tons: Cast Borings, \$5 to \$5.50; No. 1 Busheling, \$11 to \$11.50; No. 1 Railroad Wrought, \$12.50 to \$13; Wrought Turning, \$8 to \$8.50; Iron Car Axles, \$17 to \$18; No. 1 Cast, \$11 to \$11.50; Stove Plate, \$8.

Birmingham.

(By Telegraph.)

BIRMINGHAM, ALA., October 19, 1904.—The market is very firm on the basis of \$11 for No. 2 Foundry, with sellers very reluctant to meet that price. Sales are therefore small and orders at current quotations are turned down constantly. Sellers are confining business to meeting the requirements of long standing customers, whose wants are not fully covered. There are more orders declined than accepted and, as a rule, the general market is avoided. Some business has been concluded for the first quarter of next year on the basis

of \$12 for No. 2 Foundry, and at this price sellers are reluctant to meet the demand. Most of the Iron selling is on the basis of \$11 for No. 2 Foundry, with occasional sales at \$11.25 for delivery this year. No. 1 Foundry has sold at \$11.50 and No. 3 Foundry at \$10.50; No. 4 Foundry and Gray Forge brought \$10, but only for sellers' declination to accept orders the sales would have been large. The strike situation is growing more and more favorable to the operators, and miners are constantly returning in squads to work. Some furnaces that have been out of blast are preparing to go in again, and the prospect for an increased production of Iron at an early date is favorable.

The New York Machinery Market.

NEW YORK, October 19, 1904.

There is no change in the situation. The improved feeling which we noted several weeks ago continues. The increase of business of the week has been in the shape of small orders for miscellaneous machinery. This has been the case not only in New York, but in all other important machinery centers of the country, according to reports received by merchants here from their various branch houses. There have been a few machine tool transactions running a little above the ordinary, such as an order for 20 universal milling machines, amounting to about \$20,000, and another for 15 lathes, aggregating in value a similar amount. In the great majority of cases, however, the orders have been somewhat smaller, averaging from \$1000 to \$5000 each. Even the large corporations who have big lists of specifications in the hands of machinery merchants have been buying in but small lots. The inquiries show a very satisfactory condition and promise a steady increase in activity. There are many signs which seem to point toward an excellent state of business for the close of this year and the beginning of next.

The one quarter which is receiving the greatest amount of attention on the part of sellers at present is the paymaster's department of the United States Navy. The purchases of this branch of the Government are now of considerable importance, for they are unusually heavy. The summaries of awards, bids and specifications printed below show that the week under review has held a good deal of business from this quarter.

Considerable elation was expressed by many concerns in the machinery district over advices which they had received concerning the awards made at the Louisiana Purchase Exposition. A list of the machinery awards is printed in another column of this issue of *The Iron Age*.

Letters have been sent to members of the National Machine Tool Builders' Association asking for an expression of opinion as to whether the next meeting should be held in St. Louis or New York, as was practically agreed at the last Cincinnati meeting.

The following dispatch from Albany has created considerable speculation in the trade as to its real significance and the actual purpose of the new company:

"With a capital of \$3,000,000, the Electrical Securities Corporation was incorporated in the office of the Secretary of State. The principal office is in Schenectady, and the purpose of the corporation is to manufacture and deal in electrical, gas, water and steam power machinery. The stock is divided into \$1,000,000 preferred and \$2,000,000 common.

"The directors are W. C. Lane, Pliny Fisk, Wilbur C. Fisk, F. L. Eldridge, Oscar L. Gubelman, G. M. Cumming, W. M. Barnum, C. A. Coffin, William C. Cox, Adolphus Smedberg, Jr., Paul S. O'Connor, Robert MacLay, William T. Kaufman and F. W. Walz of New York; E. T. Stotesbury of Philadelphia; Gordon Abbott and James J. Storrow of Boston; M. B. Johnson of Cleveland; M. J. Perry of Providence, R. I.; Edward C. Palmer of Morristown, N. J.; Harry S. Babcock, Jr., of Flushing, L. I.; S. M. Hamill, H. W. Darling and E. R. Coffin of Schenectady."

The fact that several General Electric people and a number of influential financiers are interested in the new corporation was the cause of the curiosity expressed in the Street. We are advised by an official of the General Electric Company that the new concern does not contemplate manufacturing at all, but has as its object the financing of sound projects the consummation of which necessitates the purchase of electrical apparatus. In other words, it is the formation of a separate company to carry out in an extensive and systematic manner certain lines along which the General Electric Company is operating at present. It is generally known in the trade that this company has interested itself financially in many electrical projects where its apparatus has been installed. The new corporation will hereafter perform this function of the business and develop it, leaving the General Electric Company to attend strictly to manufacturing and selling its product. Harvey Fiske & Sons will act as the financial agents for the new corporation.

Several contracts were placed last week by S. Pearson & Sons, Limited, for the Pennsylvania Railroad tunnel work. The contracts for the shields and some of the hydraulic

accessories were awarded to the New York Shipbuilding Company of Camden, N. J. R. D. Wood & Co. of Philadelphia received orders for accumulators and other hydraulic appurtenances. The order for the six high speed engines was awarded to the Reeves Engine Company of Trenton, N. J., and 85 Liberty street, New York. There will be three of 200 horse-power and an equal number of 125 horse-power capacity. They will be of the vertical type.

The contract for the coal and ashes handling machinery for the extension to the Kent avenue power station of the Brooklyn Rapid Transit Company has been awarded to the Mead-Morrison Mfg. Company of 11 Broadway, New York. Bids on heating and ventilating and other apparatus are now in the hands of the engineering department of the Brooklyn Rapid Transit Company, and it is expected that further contracts will be awarded in a few days.

Two nice contracts for conveying machinery have just been awarded in this city. The apparatus is to be used in the new buildings being erected by the New York Times and James A. Hearn & Son. The contracts were awarded to the Link-Belt Engineering Company of Philadelphia and New York. In the case of the new Times Building the machinery is to convey papers from the printing presses to elevators and automatically carry them up three stories to the distributing room. The Hearn installation is for carrying packages automatically from one department to another between the various floors.

The Shaw Electric Crane Company, Muskegon, Mich., through Manning, Maxwell & Moore, its selling agents, has obtained an order for a 75-ton electric traveling crane for shipment to Russia.

The contract for the condensing apparatus for the new power station of the Pennsylvania & Long Island Railway has been awarded to Alberger Condenser Company, 95 Liberty street. As we have previously noted, this station is to be used for operating the electrically converted branches of the Long Island Railroad and a portion of the Pennsylvania Railroad tunnel system. Installation is being secured now for the Long Island Railroad end of the work, and it was in this connection that the condenser order was placed. The condensers are to operate in connection with three 5500-kw. Westinghouse turbines. They will be of the counter current dry vacuum surface system, having two-stage Corliss dry vacuum pumps and centrifugal circulating pumps. It is expected to have this preliminary equipment in operation next spring.

The Bacon & Collins Supply Company, Albany, Ga., will erect a complete machine shop in Albany and is in the market for from \$15,000 to \$20,000 worth of machinery, such as lathes, drill presses, boring mills, planers, milling machines, &c. Mell A. Collins, treasurer and vice-president, is in charge of the purchases.

McClave, Rimmer & Co., 85 Liberty street, have been retained as contracting engineers by the Wioantha Knitting Company of Richfield Springs, N. Y. They are now preparing specifications for heating and ventilating apparatus, sprinklers, power plant equipment, electric wiring, &c., for which they will soon be in the market. The mill is to be electrically operated.

The Phoenix Silk Mfg. Company, Paterson, N. J., is securing preliminary estimates on the equipment for a new silk mill. The plant will be of pretty fair sized proportions, having about a 500-kw. electric station.

The Stirling Company announces that it has appointed Frederick A. Scheffler special representative, with headquarters in its New York office, Engineering Building, 114 Liberty street, New York. Mr. Scheffler will be associated with A. L. Rogers, district sales manager.

As a result of our investigation of press reports concerning the projectile department of the Firth-Sterling Steel Company at Demmler, Pa., we have received the following communication, which is self explanatory: "The reports which were circulated in the papers in regard to the extensions in our plant were pure fabrications. The basis of them was that we employed a McKeesport construction company to put a row of windows in an unused building so that we could install a few extra lathes of modern construction, as we found that using our brand of Blue Chip high speed steel our lathes were not powerful enough to give the new tools a chance. These small additions were magnified by the daily papers."

The Bureau of Yards and Docks, Navy Department, Washington, will receive bids until December 3 for constructing a plant for handling and storing coal at the naval station, New Orleans, La.

The Isthmian Canal Commission, Washington, is about ready to purchase for use on the isthmus a quantity of supplies, including four dry pipe tapping machines, six 1-inch iron pipe thread, tap and drill combined; one corporation tapping machine, four Bates' numbering machines, &c.

The following is the list of machine tools for the Portsmouth, Boston, New York, League Island, Norfolk and New Orleans navy yards, bids for which will be opened November 8 at the Bureau of Supplies and Accounts, Navy Department, Washington:

Class 1. One improved patent head 30-inch engine lathe, with 20-foot bed, motor driven.

Class 2. One improved patent head 48-inch engine lathe, with 20-foot bed, motor driven.

Class 3. One improved patent head 42-inch engine lathe, with 25-foot bed, motor driven.

Class 4. One improved patent head 36-inch engine lathe, with 15-foot bed, motor driven.

Class 5. One 63-inch triple geared engine lathe, with 34-foot bed, motor driven.

Class 6. One pattern maker's lathe, 25 x 50 inch swing, 10-foot bed with gap 20 $\frac{3}{4}$ inches long, motor driven.

Class 7. One motor driven planing machine, to plane 54 inches wide, 54 inches high and 14 feet long.

Class 8. One motor driven plate planing machine, capacity for planing plate 1 $\frac{1}{2}$ inches thick and 24 inches in length.

Class 9. One set No. 8, plate bending rolls, capable of bending 1 $\frac{1}{4}$ -inch steel plates, 12 $\frac{1}{2}$ inches in length, motor driven.

Class 10. One set No. 4 plate straightening rolls, capacity for plate 10 inches in width and 1 $\frac{1}{4}$ inches in thickness, motor driven.

Class 11. One set of horizontal heavy rolls for bending boiler shell plates, the rolls to be driven by duplex vertical engines. The rolls are to be of ample capacity for bending 1 $\frac{1}{4}$ -inch plates 14 feet wide, 1 $\frac{1}{2}$ -inch plates 12 feet wide and 1 $\frac{3}{4}$ -inch plates 8 feet wide.

Class 12. One pipe flanging and expanding machine for all classes of pipe from 2 to 7 $\frac{1}{2}$ inches diameter, motor driven.

Class 13. One motor driven pipe flanging and expanding machine for all classes of pipe from 2 to 7 $\frac{1}{2}$ inches diameter.

Class 14. One 18-inch electrically driven cold saw cutting off machine.

Class 15. One motor driven 18-inch cold cutting off machine.

Class 16. One electrically driven engraving machine.

Class 17. One motor driven band sawing machine, suitable for cutting copper, with table 42 x 34 inches.

Class 18. One Scriven horizontal punching beam and bulb shearing and beam bending machine, motor driven.

Class 19. One motor driven three-spindle milling machine, with one vertical and two horizontal spindles.

Class 20. One motor driven four-spindle planer type milling machine.

Class 21. One motor drive bar iron shear, capable of shearing 2-inch diameter mild steel bars.

Class 22. One No. 3 angle shear, capacity for shearing 6 x 6 x 1 inch angles straight or on the bevel, motor driven.

Class 23. One motor drive rotary bevel shear, capable of beveling steel or iron $\frac{1}{8}$ to $\frac{3}{4}$ inch thick.

Class 24. One motor driven rotary splitting shears, capacity for 1-inch plate.

Class 25. One 60-pound helve hammer.

Class 26. One 800-pound single stand steam hammer.

Class 27. One duplex air compressor, with cross compound noncondensing steam and cross compound air cylinders, fitted with improved separate intercooler.

Class 28. One 2000-pound deck winch.

Class 29. One No. 3 full universal Bickford radial drill, complete with universal tilting table, equipped with 5 horsepower direct current motor.

Class 30. One 16-inch sensitive drill press, motor driven.

Class 31. One 28-inch drill press, motor driven.

Class 32. One 13-inch sensitive drill press, one spindle, motor driven.

Class 33. One 300-ton 50-inch double quick hydrostatic car wheel press, to be driven by a 6 $\frac{1}{2}$ horse-power motor.

Class 34. One motor drive outfit for size B Long & All-statter beam punch.

Class 35. One motor drive outfit for 51-inch Bullard vertical boring and turning mill.

Class 36. One motor drive outfit for Detrick & Harvey 48-inch open side planer No. 23.

Class 37. One motor drive Bement-Miles No. 4 combination punching and shearing machine.

Class 38. One motor drive outfit for Wm. Sellers & Co. combined punching and shearing machine.

Class 39. One motor drive outfit for double angle shear.

Class 40. One motor drive outfit for horizontal bender.

Class 41. Two 15-ton three-motor electric traveling cranes.

Class 42. Two 40-ton three-motor electric traveling cranes.

Class 43. One 10-ton, one 7 $\frac{1}{2}$ -ton and two 2-ton pulley block bridge traveling cranes.

Class 44. One 10-ton locomotive train.

Class 45. One 2-inch vertical shaft volute centrifugal pump, direct connected to 1 horse-power vertical shaft motor.

Class 46. One 1500-gallon duplex steam pump.

Class 47. Two compound duplex outside plunger pot valve pumps.

Class 48. One 4 $\frac{1}{2}$ x 4 $\frac{1}{2}$ inch combined steam and hand steaming engine.

The following awards have been made for machine tools for the New York, League Island, Norfolk, Pensacola, Puget Sound and Washington navy yards, bids for which were opened September 27:

American Tool Works, Cincinnati, Ohio, class 1, two improved gap lathes, \$710.

Prentiss Tool & Supply Company, New York, class 2, one gap lathe, \$491.

Handlan Buck Mfg. Company, St. Louis, Mo., class 5, one vertical drilling machine, motor driven, \$178.

Fairbanks Company, New York, class 6, one universal milling machine, No. 2, motor driven, \$774.

J. W. Creegar Agency, Philadelphia, class 7, one crank back geared shaper, \$458.

Bentel & Margedant & Co., Hamilton, Ohio, class 11, one 8-inch four-sided molder, \$400.

Hallidie-Henshaw-Bulkley Company, Seattle, Wash., class 12, one single surface planer, \$247.56.

Tatham & Bowen, San Francisco, Cal., class 13, one tenoning machine, \$245.

Morgan Engineering Company, Alliance, Ohio, class 14, one overhead electric traveling crane, \$5945.

The following bids were opened October 11 for supplies for the various navy yards:

New York.

Bidder 3. Diehl Mfg. Company, Elizabeth, N. J.

4. S. A. Woods Machine Company, South Boston, Mass.

5. The Helwig Mfg. Company, St. Paul, Minn.

7. Manning, Maxwell & Moore, New York.

8. Frederick Post Company, New York.

15. Rand Drill Company, New York.

16. The Ingersoll-Sergeant Drill Company, New York.

21. John B. Roache, Brooklyn, N. Y.

25. J. W. Paxson Company, Philadelphia, Pa.

28. Carlton-Chase Electric Company, New York.

30. Laidlaw-Dunn-Gordon Company, New York.

40. The New England Motor Company, Lowell, Mass.

41. The Burke Electric Company, Erie, Pa.

42. Nelson Morris & Co., Chicago, Ill.

44. Atlantic Works, Incorporated, Philadelphia, Pa.

47. The Bullock Electric Mfg. Company, Cincinnati, Ohio.

49. The Bentel-Margedant Company, Hamilton, Ohio.

51. The Columbia Pneumatic Tool Company, Columbus, Ohio.

54. Oliver Machinery Company, Grand Rapids, Mich.

57. Niles-Bement-Pond Company, New York.

63. American Woodworking Machinery Company, New York.

66. Westinghouse Electric & Mfg. Company, Pittsburgh, Pa.

73. B. F. Sturtevant Company, Hyde Park, Mass.

75. Akron Electrical Mfg. Company, Akron, Ohio.

82. Wm. Wirt Clark & Son, Baltimore, Md.

83. Crocker-Wheeler Company, Ampere, N. J.

84. The S. Obermayer Company, Cincinnati, Ohio.

85. Frye, Phipps & Co., Boston, Mass.

86. General Incandescent Arc Light Company, New York.

87. Eureka Fire Hose Company, New York.

89. R. W. Geldart, New York.

90. Sherman-Brown-Clements Company, New York.

92. Manhattan Supply Company, New York.

97. Fox Bros. & Co., New York.

102. The Fairbanks Company, New York.

114. McCay Engineering Company, Baltimore, Md.

116. H. A. Rogers Company, New York.

119. Western Electric Company, New York.

128. Holtzer-Cabot Electric Company, Brookline, Mass.

139. General Electric Company, Schenectady, N. Y.

146. Chicago Pneumatic Tool Company, New York.

147. Prentiss Tool & Supply Company, New York.

148. Sprague Electric Company, New York.

152. The Blaisdell Machinery Company, Bradford, Pa.

154. Thresher Electric Company, Dayton, Ohio.

159. Motley, Green & Co., New York.

161. D'Olier Engineering Company, Philadelphia, Pa.

163. Edwin W. Irwin, New York.

165. Andrew J. Bradley, New York.

172. Montgomery & Co., New York.

181. Engberg Electrical & Mechanical Works, St. Joseph, Mich.

183. Bridgeport Safety Emery Wheel Company, Bridgeport, Conn.

189. Drew Machinery Agency, Manchester, N. H.

Class 4. One 65 horse-power motor, direct current—Bidder 41, \$735; 139, \$765; 114, \$891; 83, \$894.50; 3, \$900; 75, \$930; 119, \$1050; 47, \$1095; 66, \$1100.

Class 5. Fifteen direct current inclined motors—Bidder 28, \$1339.25; 83, \$1805.60; 148, \$1830.75; 139, \$1954; 41, \$1981; 66, \$2055; 75, \$2075; 161, \$2097; 119, \$2140; 128, \$2266; 154, \$2342; 114, \$2392.20; 40, \$2532; 86, \$2695.62.

Class 6. One induction motor—Bidder 139, \$205; 66, \$215.75.

Class 7. Six generating sets—Bidder 181, \$2820; 73, \$4200; 139, \$4356; 83, \$4974.

Class 8. Two 2 $\frac{1}{2}$ kw. generating sets—Bidder 73, \$877.10; 83, \$935.50; 139, \$1000; 119, \$1025.

Class 63. One jointing and fencing machine—Bidder 102, \$139 and \$148; 189, \$139 and \$163; 44, \$140; 49, \$144; 116, \$147; 147, \$153; 54, \$155; 57, \$160; 63, \$165; 7, \$175.

Class 64. One 38-inch band saw—Bidder 102, \$118.50 and \$220; 189, \$134; 116, \$140; 49, \$144; 57, \$165; 63, \$165; 44, \$180; 7, \$181 and \$279; 4, \$315; 54, \$320.

Class 65. One automatic knife grinder—Bidder 102, \$118 and \$198; 189, \$152.50; 63, \$185; 183, \$240; 92, \$273; 7, \$279; 44, \$280; 54, \$286; 4, \$315.

Class 66. One upright boring machine—Bidder 63, \$86; 7, \$95 and \$159; 54, \$100; 44, \$110; 49, \$118; 116, \$130; 189, \$130; 57, \$190.

Class 67. One pedestal column scroll saw—Bidder 189, \$73; 102, \$75 and \$81; 49, \$75; 147, \$79; 63, \$85; 116, \$88; 44, \$100.

Class 68. One pattern maker's gap lathe—Bidder 147, \$349; 7, \$545; 54, \$790.

Class 69. One No. 7 Sturtevant steel pressure blower—Bidder 73, \$900; 102, \$970; 7, \$1000.

Class 70. One sprue cutter—Bidder 84, \$365; 102, \$430; 147, \$437.

Class 71. Two double emery grinders—Bidder 183, \$493.40; 57, \$499; 92, \$588; 7, \$615.

Class 72. One Hanna portable pneumatic screen shaker—Bidder 146, \$40; 87, \$57.50; 7, \$60; 97, \$64 and \$109; 189, \$67.

Class 73. Twenty-seven pneumatic hammers and one pneumatic portable emery grinder—Bidder 90, \$1153.25; 15, \$1570; 146, \$1698; 7, \$1725; 16, \$1731.50; 163, \$1815 and \$1827; 198, \$2442; 97, \$2654.47; 28, informal.

Class 74. One portable core oven—Bidder 7, \$125; 84, \$125; 97, \$127.49; 92, \$133.90; 25, \$145.

Class 75. One horizontal duplex air compressor—Bidder 152, \$1115 and \$1375; 30, \$450; 189, \$1544, \$1641, \$1650 and \$2148; 146, \$1550.50 and \$1680; 90, \$1584; 16, 1617 and \$2098; 97, \$1645; 159, \$1650; 15, \$1693; 7, \$2080.

Class 76. 12 reversible air drills—Bidder 163, \$1020 and \$1080; 146, \$1080; 16, \$1200, \$1458, \$1500 and \$1620; 15, \$1212; 7, \$1260; 97, \$1538.88; 5, \$110.75, \$105.75, \$100.75, \$95.75, \$90.75 and \$85.75 each.

Class 77. 41 roller tube expanders—Bidder 189, \$112.65 and \$88.65; 7, \$117; 33, \$270; 172, \$290; 116, \$297.86; 92, \$305.50; 146, \$369.60; 97, \$434.82; 16, \$515.30; 5, \$707.

Class 78. Four sets special tube expanders—Bidder 8, \$360; 97, \$389.76; 102, \$415; 92, \$441.60.

Class 79. Three portable hand test pumps—Bidder 116, \$276; 42, \$298.20; 97, \$375.

Class 80. Three duplex gear hoists—Bidder 85, \$55.50 and \$63; 89, \$57.90; 97, \$58.32; 42, \$60; 82, \$60 and \$66; 21, \$61.32; 172, \$62.70; 102, \$64.50; 7, \$66; 146, \$405.

Class 81. Two pneumatic hoists—Bidder 146, \$72 and \$270; 16, \$84; 84, \$95; 97, \$170; 163, \$250; 90, \$329.90; 7, \$316 and \$400.

Class 82. Three Simplex electric glue heaters—Bidder 85, \$31.50; 172, \$38.85; 97, \$43.05 and \$46.02.

Class 83. One cast steel strong neck for forcing machine—Bidder 7, \$60; 172, \$62; 116, \$63.25; 90, \$65; 97, \$70.

Class 84. Six piston air drills—Bidder 146, \$450; 51, \$513.

Class 85. One stencil cutting machine—Bidder 42, \$100; 165, \$100.

Class 157. Four sets steam engines—Bidder 19, \$2500; 90, \$2520.

Class 158. One No. 3 Rockwell rotary melting frame—Bidder 64, \$1050.

Class 159. Two mild steel cylindrical corrugated furnaces and 12 Morrison suspension furnaces—Bidder 37, \$3722.

Class 160. 30 manhole plates, 30 furnace doors and two Ward boilers and spare parts—No bids.

Class 161. Eight boiler feed pumps and 12 light service pumps—Bidder 88, \$10,515; 78, \$11,870; 159, \$13,687.

Class 162. Three Blake duplex pumps—Bidder 78, \$148.

Class 163. Two dozen compressor lathers and two dozen expander lathers—Bidder 92, \$36.

The Pittsburgh Engineering Company.—This company has broken ground for its new plant at Butler, Pa., which will comprise a foundry, machine and erecting shops and display and demonstrating rooms. The buildings will be of brick and steel construction and modern in design. The plant will manufacture Redding gas engines and gas producers for gas engines, heating, lighting and domestic purposes. In addition, facilities will be provided for the installation of a patent automatic safety signal for railroads. The buildings are to be completed and the plant in operation by January 1.

C. A. Jamison, a large stockholder in Kingman & Co. and the Kingman Plow Company, Peoria, Ill., has filed a suit in the Peoria Circuit Court asking that a receiver be appointed for these concerns and their affiliated companies in other cities. He claims in his bill that his interests are being ignored and jeopardized by the actions of the present officers. Mr. Jamison was, until recently, manager of the firms named.

New York.

NEW YORK, October 19, 1904.

Pig Iron.—There has been a good deal of activity in Eastern Pennsylvania and in this section, and large lots of Foundry Forge and Basic Pig have been sold at advancing prices. Among the sales in this district are 5000 tons of Foundry Iron to a sewing machine works, the bulk of the Iron being of Virginia make, and 5000 tons of Basic Iron to a local steel plant. Prices have been advanced about 25c. per ton, and many sellers are demanding 25c. more. The leading Alabama makers have practically withdrawn from the market. We quote: \$15 to \$15.50 for No. 1 Northern Foundry, \$14.50 to \$14.75 for No. 2 Foundry, and \$13 to \$13.25 for Gray Forge. Tennessee and Alabama brands are nominally \$14.25 to \$14.75 for No. 2 Foundry and \$13.75 to \$14 for No. 3 Foundry.

Steel Rails.—Nothing is being done in Standard Sections. In Light Sections prices have hardened considerably and \$19.50 to \$20 is the minimum now even for round lots.

Cast Iron Pipe.—The Borough Construction Company was the lowest bidder on the contract for the installation of the Brooklyn high pressure fire service. It is not yet known of whom this company will purchase the 12,000 net tons of Pipe to be used in the work. The leading Pipe interest secured the contract for the 1400 net tons of ordinary Pipe awarded on the same day for the Brooklyn water supply. Quite a low price was made on this contract, but since then the tone of the market has decidedly improved and it is now believed that bottom prices have been seen. On small lots the market is undoubtedly stronger. Foundrymen are having their views decidedly stiffened by the improving condition of the Pig Iron market. It is no longer possible to purchase supplies of raw material, either Pig Iron or Coke, as cheaply as could be done two or three weeks since. Carload lots are \$25 to \$25.50 per gross ton for 6 to 10 inch and \$24 to \$25 for 12-inch, at tidewater.

Finished Iron and Steel.—In a general way business may be said to be picking up in all lines. Consumers who were waiting for lower prices are now beginning to believe that for the present bottom has been touched and any change is more likely to be upward than downward. Conservatism prevails, however, and few contracts are being placed either for large tonnages or for deliveries much into the future. The Structural business secured during the week has not included any very large quantities. The leading interest was awarded the Wabash Railroad contract for freight sheds and other terminal improvement work at Pittsburgh, requiring about 5000 tons, and a 2500-ton bridge for the Lackawanna Railroad at Buffalo. Small orders for Structural Material are more numerous than they have been. The Plate trade is also much more active, but this is almost entirely shown by the increase in the number of orders rather than in size of single orders. The same may be said of the Bar trade, in which the volume of business is steadily increasing. Quotations at tidewater are as follow: Beams, Channels, Angles and Zees, 1.54½c. to 1.80c.; Tees, 1.59½c. to 1.80c.; Bulb Angles and Deck Beams, 1.64½c. to 1.85c.; Sheared Plates, in carload lots, 1.54½c. to 1.65c. for Tank, 1.64½c. to 1.80c. for Flange, 1.74½c. to 1.90c. for Marine, and 1.74½c. to 2.50c. for Fire Box, according to specifications; Refined Bar Iron, 1.44½c. to 1.49½c.; Soft Steel Bars, 1.44½c. to 1.49½c.

Old Material.—No large transactions have come to light, but dealers report a good demand for practically all classes of Old Material, the prominent exception being Relaying Rails, which seem to be absolutely neglected. It is possible that some difficulty may be experienced in securing stock at some of the quotations which we give. Prices per gross ton in New York and vicinity are approximately as follows:

Old Iron Rails.....	\$15.50 to \$16.00
Old Steel Rails, rerolling lengths.....	12.00 to 12.75
Old Steel Rails, short pieces.....	11.00 to 11.50
Relaying Rails.....	16.00 to 17.00
Old Car Wheels.....	11.00 to 11.50
Old Iron Car Axles.....	16.50 to 17.00
Old Steel Car Axles.....	14.00 to 14.50
Heavy Melting Steel Scrap.....	11.00 to 11.50
No. 1 Railroad Wrought Scrap.....	13.00 to 14.00
Iron Track Scrap.....	11.00 to 11.50
Wrought Pipe.....	9.00 to 9.50
Ordinary Light Iron.....	6.00 to 6.50
Cast Borings.....	5.00 to 5.50
Wrought Turnings.....	7.00 to 7.50
No. 1 Machinery Cast.....	10.75 to 11.00
Stove Plate.....	8.50 to 9.00

The light rail mill at the Edgar Thomson Steel Works of the Carnegie Steel Company at Bessemer is running double turn. The company has recently entered orders for a large tonnage of light rails.

The new slabbing mill of the Lackawanna Steel Company at Buffalo has been started this week. Four of the new open hearth furnaces are in operation and the other two furnaces will be started in a few days.

Metal Market.

NEW YORK, October 19, 1904

Pig Tin.—Under speculative influences exerted both here and abroad the market advanced above the figures quoted last week. With prices advancing steadily, consumers naturally come forward with small orders. The bulk of the business of the week was on speculative account, however, as the manipulators were forced to buy quite a little spot metal to carry out the programme of advancing prices. In London the transactions in spot were so heavy on this account that futures were sold at a discount of £1 10s., as shown in our quotations below. At this writing prices quoted here are as follows: Spot, 28.82½c. to 29c.; October, 28.75c. to 28.95c.; November, 28.65c. to 28.90c. The closing London prices to-day were as follows: Spot, £132; futures, £130 10s. The arrivals for the month amount to 1695 tons, while about 1760 tons are afloat.

Copper.—Prices have been advanced again by the large selling interests. The market is now being held firmly, consumers buying according to their immediate requirements, but not heavily. Exports are continuing at the 20,000 tons per month pace, but we are informed that orders are coming in somewhat lighter than they did when the metal which is now being shipped was purchased. Prices are being quoted as follows: Lake, 13.12½c. to 13.37½c.; Electrolytic, 13c. to 13.25c.; Casting, 12.87½c. to 13c.; London, spot, £60 1s. 3d.; futures, £60 5s.; Best Selected, £63 15s. Exports for the month now amount to 12,194 tons.

Pig Lead.—Strictly spot metal in this city has advanced and the market is somewhat firmer. St. Louis also advanced considerably. The American Smelting & Refining Company is still quoting on a basis of 4.20c. for "shipment" Desilverized in 50-ton lots. Strictly spot Lead in small quantities is quoted here 4.30c. to 4.35c., while St. Louis telegraphs 4.20c. The London market is higher at £12 5s.

Spelter.—The market is firm and higher. Spot is quoted here to-day 5.20c. to 5.25c., and St. Louis is considerably firmer and is now quoting 5.15c. London is also higher at £23 2s. 6d.

Antimony.—Is firmer, and as a result of a pretty heavy buying movement which has been in progress for some little time stock is now well concentrated. Cookson's is quoted 7.25c. to 7.50c., Hallett's is 7c. to 7.25c. and other brands are obtainable at 6.25c. to 6.50c.

Nickel.—The usual amount of business is passing and prices are steady, large lots being quoted at 40c. to 45c. and smaller quantities at 50c. to 60c.

Quicksilver.—The market has declined. Flasks of 76½ lbs. were quoted to-day at \$40. London is unchanged at £7 15s.

Tin Plate.—Nothing new has developed in the situation as regards Tin Plate. The market is still quiet and unchanged. A fair amount of business is passing, as is usual at this time of the year. The American Sheet & Tin Plate Company is quoting \$3.30 per box, Pittsburgh, for 14 x 20 100-lb. Coke Plates, making the price \$3.49, delivered in New York. The Welsh market is 1½ pence better, at 11 shillings 9 pence.

We are indebted to L. Vogelstein, American representative of Aron Hirsch & Sohn, Halberstadt, Germany, for the following figures showing the German consumption of foreign Copper for the months January to August, 1904, as compared with the same period of time for 1903-1902:

	1904.	1903.	1902.
	Tons.	Tons.	Tons.
Import	74,482	56,094	54,643
Export	5,610	6,964	6,118
Consumption.....	68,872	49,130	48,525

Of the total imports this year 62,165 tons came from the United States, against 41,475 tons in 1903.

Managers, heads of departments and salesmen of the Allis-Chalmers Company held a general meeting in Milwaukee, October 11, 12 and 13, at the Reliance Works of the company, on Clinton street. Each year a meeting is held to discuss business conditions and exchange views. The meeting held last week was the first under the new management and was attended by B. H. Warren, president; Arthur Warren, chief of publicity; G. H. Collins and C. H. Herschel of New York; G. C. Forgent and G. T. Thomas of Scranton, Pa.; B. H. White of Chicago, and others. An inspection of the new works at West Allis was the special feature of one day. A dinner at the Hotel Pfister was a particularly pleasurable incident of the meeting.

The value of United States imports of merchandise in September is reported by the Bureau of Statistics of the Department of Commerce and Labor at \$84,132,546, and

of exports at \$134,267,115, showing an excess of exports of \$50,134,569.

Iron and Industrial Stocks.

NEW YORK, October 19, 1904.

The feature of the past week was a great outburst in speculation in industrial stocks, in which the iron and steel stocks played a leading part. Transactions in the United States Steel stocks were on a very large scale. The range of prices on active stocks up to Tuesday afternoon of this week was as follows: United States Steel common 18½ to 22½, preferred 76½ to 83½, new 5's 85 to 88½; Car & Foundry common 25½ to 27½, preferred 83½ to 85½; Locomotive common 28¼ to 30½, preferred 96½ to 98; Cambria Steel 22½ to 24½; Colorado Fuel 36 to 39½; Pressed Steel common 39 to 44½, preferred 82½ to 84½; Railway Spring common 24 to 27½, preferred 82½ to 86½; Republic common 11½ to 13, preferred 50½ to 54½; Sloss-Sheffield common 42½ to 46½, preferred 89½ to 91; Tennessee Coal 50½ to 58½; United States Cast Iron Pipe common 12¾ to 14½, preferred 61 to 65½. American Can stocks were under pressure, reaching a high point of 7½ for the common and 50½ for the preferred on Thursday last, from which they receded sharply. Last transactions up to 1.30 p.m. to-day were made at the following prices: Can common 5½, preferred 45; Car & Foundry common 26½, preferred 85; Locomotive common 28½, preferred 98; Colorado Fuel 38½; Pressed Steel common 41½, preferred 82½; Railway Spring common 25¾, preferred 87½; Republic common 12½, preferred 53; Sloss-Sheffield common 45½, preferred 91; Tennessee Coal 56; United States Steel common 21½, preferred 81½, new 5's 87½.

Colorado Fuel & Iron Company.—The threatened injunction against the proposed bond issue did not materialize at the annual meeting of stockholders held in Denver, October 17. President F. J. Hearne was chairman, and the meeting was harmonious. The old Board of Directors was elected with two exceptions. Starr J. Murphy of Montclair, N. J., and Judge D. C. Beaman of Denver were chosen to succeed J. A. Kebler, deceased, and J. C. Osgood, who resigned some time ago. The stockholders voted to authorize a bond issue of \$45,000,000 for the purpose of paying off certain indebtedness upon the properties, to retire the debenture bonds, and to provide a surplus and working capital. Under this issue of bonds \$8,000,000 will be available for immediate purposes, of which more than half will be expended in making improvements in the plant and extension of properties in Colorado. The capital stock was increased to \$46,200,000. The directors will meet next week and elect officers.

The Virginia Iron, Coal & Coke Company.—President Henry K. McHarg in his report for the fiscal year ended June 30 last refers to the continued depression in iron, coal and coke, which has made it very difficult for the company to operate the property successfully and earn anything more than the operating expenses. The net earnings of the company from all sources for the first six months of the year, after setting aside the interest for September, October, November and December, the interest on its bonded debt having begun on September 1, 1903, were, in round figures, about \$92,000. Since January 1, 1904, the deficiency from month to month under interest, taxes and expenses has been about \$122,000. Deducting, therefore, the \$92,000 standing to the credit of the company up to January 1, 1904, shows that, after paying interest, the company has run behind approximately \$30,000 for the year's operations. The company had on hand July 1, 1904, pig iron valued at \$644,533, none of which has been pledged for any loans and no cash borrowed on it. The outstanding bonds of the company on June 30, 1904, were \$69,991,000. All prior liens ahead of the Virginia Iron, Coal & Coke Company first mortgage 5 per cent. bonds, with the exception of \$557,000 of Carter Coal & Iron Company bonds, have been paid and the mortgage canceled as of record. The total reduction in the bonded debt in the past year has been \$609,000.

On October 24 James Smith, Jr., receiver of the United States Shipbuilding Company, will sell at Newark, N. J., all the shares of the capital stocks of the various subsidiary companies. The stock of the Bethlehem Steel Company was sold some time ago for \$7,500,000 and will not be included in this sale. The par value of the securities to be sold to the highest bidder is \$4,350,000. On the same date the shipbuilding company's book accounts are to be sold for not less than \$50,000, the upset price fixed by the court.

Dividends.—Henry R. Worthington has declared the regular semiannual dividend of 3½ per cent. on the preferred stock, payable November 1.

International Power Company has declared a dividend of \$3 per share on the preferred stock, payable December 1.

National Fireproofing Company has declared the usual quarterly dividend of 1¼ per cent. on the preferred stock, payable October 25.

PERSONAL.

J. W. Downer, for more than 20 years connected with the National Tube Works Company and later with its successor, the National Tube Company, and who for several years has had charge of the export business of the National Tube Company, with headquarters in London, England, has been made general manager of sales, with headquarters in the Frick Building, Pittsburgh, succeeding Edward Worcester, who has held this position for some years. Mr. Worcester continues to hold the position of first vice-president of the National Tube Company, Frick Building, Pittsburgh.

Wallace Buell, manager of the open hearth steel department of the American Tube & Stamping Company, Bridgeport, Conn., since July, 1903, announces his retirement from the company.

N. V. F. Wilson has resigned as district manager in charge of the Etna Standard plant of the American Sheet & Tin Plate Company, at Martins Ferry, Ohio, to assume the position of assistant to Eugene W. Pargny, vice-president, in charge of sales. Harry Cooke succeeds Mr. Wilson as district manager at Martins Ferry.

H. Taylor of N. & G. Taylor Company, Philadelphia, returned from Europe on the "Lucania," which arrived in New York on the 15th.

Dr. Hans Goldschmidt, the leader in aluminothermics, has returned to Essen, Germany, after a stay in this country.

J. B. Nau, consulting metallurgist, of New York, goes abroad at an early date on professional work.

W. A. Merrifield, formerly general manager, secretary and treasurer of the Stover Mfg. Company, Freeport, Ill., has resigned his position and disposed of his interest in the company. Lewis Hughes has been elected secretary and treasurer to succeed him.

As a result of the dissolution of the Fields-Evans Iron Company, due to a partnership disagreement, referred to in last week's issue, David Evans, the president of the company, will actively represent the Sloss-Sheffield Steel & Iron Company in the Chicago territory, under the same arrangement in effect prior to his election to the presidency of the Fields-Evans Iron Company. Irvin McDowell, who has been associated with Mr. Evans for a number of years in the Chicago office, will continue that business relation.

Prof. Louis Duncan, head of the electrical engineering department of the Massachusetts Institute of Technology, has resigned for the purpose of acting as electrical engineer for the New York Rapid Transit Commission and several railroad and telephone companies. Prof. Harry E. Clifford, associate professor of theoretical electricity, has been appointed acting head of the electrical department.

A. C. Meyjes, editor of the *Ironmonger* of London, is one of the recent arrivals. He will join the Iron and Steel Institute meeting.

Martin Boecker of the Friedenshuetten, C. Marx of the Bismarckhuetten and H. Rohe of the Koenigshuetten, famous works in Upper Silesia, Germany, have just made a tour of the works of this country.

Henry C. Frick has been elected a director of the Coney Island & Brooklyn Railroad, succeeding the late Thomas Clark, Jr. Mr. Frick was also recently elected a director of the Union Pacific Railroad.

Lucius T. Gibbs, the well-known inventor and builder of practically all the electric wagons and trucks operating on the streets of New York, has joined the mechanical staff of the Manhattan Transit Company as mechanical and electrical expert.

Charles H. Thomas, superintendent for the past two years of the Hay Foundry & Iron Works, Newark, N. J., on October 24 will assume the management of the Charles Creighton Foundry Company, New York, in which he has become a large stockholder. Mr. Thomas is president of the Associated Foundry Foremen, acting in conjunction with the American Foundrymen's Association.

Some changes among officials of Carbon Steel Company of Pittsburgh have been made. Jas. Kilduff has been elected president, succeeding C. M. Raymond; J. W. Anderson has been made vice-president, while Frank Holland continues as secretary.

Frank Buchanan, who has been re-elected president of the International Association of Structural Iron Workers, gained some prominence last year through the efforts of the late Sam Parks to oust him from his position as president.

Labor Notes.

Wage reductions averaging from 16 to 18 per cent. have been made in the Illinois Steel Company's Joliet Works, in order to place them on a par with present schedules in the Pittsburgh district. Similar reductions are likely to be made at the South Chicago Works of the same company when the present agreement expires, January 1, 1905.

The strike of the molders at Worcester, Mass., has been slightly complicated by a strike of some of the men employed by the foundrymen to take the places of the original strikers. This last trouble is supposed to have been instigated by the Molders' Union. Some of the men at work made a demand for \$4 a day minimum wage, which is \$1 more than the minimum wage in these foundries before the cut down of 25 cents a day which resulted in the calling out of the members of the union. This is considered to have been simply an excuse for leaving work. However, not enough men went out to interfere seriously with the conduct of the foundries affected, which are now running comfortably full.

An attempt was made on October 15, at Glassport, Pa., to blow up with dynamite the Glassport Hotel, which harbored 40 nonunion men employed at the Pittsburgh Steel Foundry's works, where there is a strike. The building was partially wrecked and the sleeping inmates were thrown from their beds. Several men were slightly injured. The proprietor of the hotel was a special officer of the steel company until two weeks ago, when he leased the hotel.

The employees of the Passaic Steel Company, Paterson, N. J., who have been out on strike against a reduction in wages ranging from 10 to 20 per cent., have accepted the reduction and returned to work.

Philip Weinselmer, who succeeded Sam Parks in the presidency of the Building Trades Council, New York, was convicted of extortion October 18.

The Cincinnati Molders' Strike.—CINCINNATI, OHIO, October 17, 1904.—The situation is very much improved. Secretary Waltz of the Employers' Association reports that four foundries are running with practically a full force, and some others have one-third to one-half their complement of men. Furthermore, it is expected that one or two more will be put in operation this week with short force, and steadily increase the number. There have been 71 arrests made for contempt of court, these parties receiving a severe lecture from the judge and having their cases continued indefinitely. The strike among the teamsters, that threatened to be very disastrous, has nearly subsided. It was feared for a time that the trouble would develop into a sympathetic strike among the stationary engineers and firemen, but it looks as if matters had taken another turn and trouble from this source would be avoided.

The report is current that the Lackawanna Steel Company's by-product plant has not been a success, and that, therefore, the company is about to purchase a large quantity of coke. The fact is that the coal produced at the mines at Wehrum, Pa., needs more careful washing on account of the sulphur contents than can be carried out in the immediate future, and that, therefore, during the winter months a part of the coke supply for the furnaces will probably be drawn from outside sources.

HARDWARE.

OUR readers do not need to be told that in the columns of *The Iron Age* we invite and secure the fullest discussion of trade questions, allowing merchants and manufacturers to express themselves freely. This policy is consistently pursued whatever may be the editorial position on the subjects which are thus reviewed. In order to enable our correspondents to express themselves freely and frankly in such discussions their letters or more formal contributions are frequently presented without indication of authorship. This course is adopted because only in this way can a full and open discussion of many subjects be secured. A manufacturer, for example, writing of some trade annoyance or abuse, perhaps in regard to special brands, or any of the troublesome practices or demands of the trade, wholesale or retail, can give the actual facts in the case provided his identity is not disclosed, while if he should write in criticism of either the jobbers or the retailers over his own name it would tend to awaken controversy and perhaps feeling and thus interfere with his business interests. In a similar way a jobber who over his own name should discuss these questions in our columns would be tempted to regard the effect of his words on the retail trade to whom he sells his goods or on the manufacturers from whom he purchases them. As a consequence he would, to say the least, be more diplomatic and reserved in his utterances, and there would be a real danger that his letters would not be characterized by frankness in describing things precisely as he sees them. In simple matter of fact the discussions of trade questions, which are recognized as an interesting and important department of *The Iron Age*, derive not a little of their value from the fact that our correspondents can tell the truth as they conceive it without incurring the criticism or ill will of any in the trade.

There is this further advantage in having discussions conducted in our columns without the names of the participants: that it eliminates the personal element and presents the case simply on its merits. In this way the real facts are brought out far more fully and definitely and fairly than would in most instances be possible, with a frank application to such facts of the principles which bear upon them. The result is a far more genuine and much more thorough discussion than if our correspondents were in a position where they would be tempted to write diplomatically, constantly considering the manner in which their business would be affected, instead of being, as they now are, perfectly free to express themselves in accordance with the facts and their views concerning them, as their identity is held in confidence by the editor and not disclosed to the trade. The removal of personal considerations from the discussion of these grave and complicated questions relating to matters in which there is always more or less clashing of interests is essential to a discussion that shall be worth the paper it is printed on. Under the methods pursued in the conduct of these discussions manufacturers, jobbers and retailers can make known their positions and views with entire freedom and accuracy and with the same frankness that would characterize their words in a personal conversation face to face with another business man, while at the same time these words are carried, as in a whispering gallery, throughout the trade, and are weighed and criticised by all in interest, without, however, disclosure of the identity of the speakers or introducing any

of the reserve, insincerity or personal feeling which otherwise might be found in them. It is very largely because this course is pursued that the discussions in our columns are known—we might almost say celebrated—for their interest and value, in view of their frankness, comprehensiveness and freedom from personal bias, though representing the views, and frequently the conflicting views, of the various branches of the trade.

It is a recognized principle in journalism that anonymous communications are not entitled to any notice, and any letters which come to us anonymously are consigned without ceremony to the waste basket. The letters which appear in our columns, though given without the names of the writers, are not in any sense anonymous communications. They have come to us from the writers and with their signatures, and in good faith are presented to our readers, with a correct designation of the writer's position in the trade, without, however, revealing his identity. We therefore bespeak for the letters and other contributions which appear in our columns the appreciation and the candid consideration of the trade, whether they are accompanied by the writer's name or are simply given with the indorsement which is implied by their publication.

Condition of Trade.

While the general course of business shows no especial change and a good volume of transactions is occupying the attention of manufacturers, jobbers and retailers, there seems to be a perceptible improvement in the tone of the market and in the confidence with which prosperity is anticipated, with a probability of a more active demand than has recently prevailed. The prosperous conditions which exist throughout the country generally, the large addition to the country's wealth as a result of the fine crops, something of an improvement in the Iron market, the increase in the volume of heavy business and the absence of financial disturbance, are conditions which furnish a basis for confidence. Within the past week or so the larger Hardware merchants have been calling upon the manufacturers much more freely for goods to replenish their stocks, their orders indicating that in a good many lines their assortments are pretty well depleted in the presence of a continued demand. The order mails consequently have recently been of excellent volume. In the matter of prices there is little change, but one or two advances having taken place in heavy stuff, which may be followed by others, as the tone is perceptibly better than of late. In a good many kinds of Heavy Hardware prices are confessedly low, some of them being sold at less than the cost of the goods. These lines are attracting the attention of buyers and some orders are being placed in excess of requirements under the impression that the purchase is safe. In some of these goods there are already indications of recovery, as extreme quotations are in some instances being withdrawn. As a general rule, however, the market is in substantially the same condition as before and concessions in prices are being made in certain branches. One gratifying sign is the insignificant effect upon business of the political canvass, which is making a new record for the year, as business is practically undisturbed. Collections continue good and the financial situation is, on the whole, very satisfactory.

Chicago.

The most active branch of the Hardware trade just now in Chicago is Builders' Hardware and other Hardware goods entering into the construction of buildings.

Only once before in the history of Chicago has building been so active as it is now and that was during the period of inflation just previous to the World's Fair, when thousands of cheaply constructed buildings were put up in order to accommodate the rush of visitors to the Fair. The present period of building activity contrasts strongly with that period in the permanence of the structures now planned or building, and as a consequence the character of Hardware which is in demand at the present time is infinitely better than that called for by the World's Fair structures. Floor and side wall Registers, Stacks, Stove and Furnace Goods, Fitting Sundries, Window Glass, Paints, Nails and other lines associated with building which are carried frequently in Hardware stocks are sharing the activity of Builders' Hardware itself. In spite of the great demand for Builders' Hardware, profits are said to be extremely small on the cheap grades owing to the ruinous price competition which is now the order of the day. It is understood here that a meeting is being held in New York this week by the five leading makers of Builders' Hardware, at which it is expected that sharp reductions in price will be made in cheaper goods in order to place the large makers on an open competitive basis with their many small rivals. Should this be done, it will give official sanction to price reductions which have been made for a long time. In other words, while the large makers theoretically adhere to the rather high schedule of official prices, an understanding has been in force that where necessary to meet competition this official price-list could be ignored. Demand for Skates, Sleds and Snow Shovels has not yet developed to any great extent, but trading in Hods, Scoops, Pipe Elbows, Stove Boards and the like is large, the demand being evenly distributed throughout the whole West and Northwest. It seems that makers of Bolts have at last gotten together and established a schedule with a view to preventing, if possible, the ruinous downward tendency of prices. Machine Bolts for shipment from mill in large quantities are quoted according to this new arrangement at a minimum of 75 and 15 for the large diameters with cut thread, and 80 and 5 per cent. discount for small diameters with rolled thread. Carriage Bolts, rolled thread, are quoted at 80 and 10, and from 80 to 80 and 5 per cent. discount is the lowest price on cut thread. Lag Screws now range from 80 and 10 to 80 and 20 per cent. discount for gimlet point, with an additional 5 per cent. for cone point. These prices all range several points higher than the lowest prices which have been quoted for the last two or three months. The Nut discounts, which have been too great for the comfort of the manufacturers, have not yet been readjusted, but it is understood that these prices, too, will be advanced before long. Hardware jobbers and mill agents feel greatly encouraged at the continued activity of the market, and local retailers, who earlier in the year were complaining of slack trade, now report that business is on a satisfactory basis.

St. Louis.

NORVELL-SHAFFLEIGH HARDWARE COMPANY.—Notwithstanding almost every crime in the calendar that is laid at the door of the jobber, such as substituting goods, breaking contracts, failing to fulfill promises and selling third-quality goods under special brands; notwithstanding the editorial of a certain prominent trade journal warning jobbers and retailers to be more respectful to the manufacturers, and another editorial denouncing jobbers' special brands, we are glad to report that both business and collections are unusually good, and that the prospects are even brighter for a profitable and satisfactory business the closing months of the year. We have become rather accustomed to think of a gentleman who occupies a desk on the top floor of a certain high building in New York as a figure of justice, holding a bouquet in one hand and a lash in the other. We have become accustomed to seeing this figure use both hands with impartiality, at one time presenting bouquets and at other times wielding the lash of criticism. After reading the last issue of this prominent journal we out here in the West cannot but feel there is an inconsistency in warning jobbers and retailers to handle manufacturers with the softest of kid gloves, while in the same paper it is so

manifest manufacturers are encouraged to literally wipe up the earth with the jobbing fraternity. We are inclined to believe in the number referred to that this great journal lost its poise and equilibrium.

Reading this journal, a foreigner not familiar with the conditions in this country would imagine the bitterest animosity existed between manufacturers and jobbers. We take this occasion to assure such a foreign reader that notwithstanding all the war paint that has been so conspicuous in trade papers of late manufacturers and jobbers continue to be good friends, and that some of those articles are discussed with amusement over pleasant little lunches in the jobbing centers of this country. If this foreign reader should go to the coming convention at Atlantic City he would find nothing but the best of good fellowship existing between manufacturers and jobbers.

It would seem our good friend in the high building in New York, by his editorial comment upon the letter of the joint committee, simply accentuated and exaggerated the very points in the letter which he appears to deplore. No reader of the letter in question would think it referred to all manufacturers any more than any intelligent reader would conclude some of the recent articles on the subject of special brands are intended to be applied to all jobbers.

If jobbers would take their experiences with manufacturers for the last quarter of a century and air in the trade papers their grievances against certain manufacturers what a long list of family skeletons would rattle their dry bones for the edification of the public! Some manufacturers have not lived up to their contracts, some have not fulfilled their promises, some have tried to palm off poor goods when goods of first quality were bought, some manufacturers have done very questionable and dishonorable things. But has anybody seen any articles written by jobbers giving the impression that manufacturers as a class, do these things? It goes without saying the manufacturers of this country, as a class, are honorable and straightforward business men; they enjoy the respect and confidence of the jobbers, and we believe this feeling is mutual and will continue, notwithstanding questions of policy that may arise from time to time between them.

Boston.

BIGELOW & DOWSE COMPANY.—Notwithstanding the near approach of Presidential election, and contrary to what merchants usually expect at such season, there is virtually no interference with the regular volume of business. An agreement signed by 60,000 merchants, manufacturers and voters favoring reciprocity and supporting the Republican candidates has influenced the party leaders to give attention where they were indifferent to the interests of New England before, and they have adopted a reciprocity plank favoring freer exchange with Canada, which is what our people want.

Outside of reciprocity there has been very little excitement or discussion of a political character, which leaves merchants free to attend to their own business and helps the volume of general trade. Some cold weather has stimulated the demand for winter goods. At this season the Cutlery departments are very busy, as dealers are making early purchases in preparation for the holidays.

Prices remain firm, and the general tendency is rather for higher than for lower prices, except in a few lines, where a royal battle rages and where no association controls the market. There never was a time when the dealers and manufacturers were working more harmoniously on lines for mutual benefit. These conditions should show at the annual "round up" at the end of the year.

Philadelphia.

SUPPLEE HARDWARE COMPANY.—Trade conditions in wholesale circles continue without much alteration, business showing about the same volume as reported in our last letter to *The Iron Age*. So far as we can learn, there is no indication of any pessimistic feeling on the part of jobbers in regard to the immediate future of trade, and retail merchants generally feel encouraged as to the future. The iron and steel industries are working on

practically full time, and other manufacturers, as a rule, report that they have not the large orders in advance of wants, as was the case the past few years, from the fact that it has been a little less difficult to have orders filled in a reasonable time, no great complaint being heard of lack of orders.

The fact that the harvested wheat crop looks better as time progresses and the corn crop is immense and practically out of danger from frost, and both are bringing good prices, is certainly encouraging. It is also satisfactory to know that the smaller grains are making a good showing. Recent reports of the cotton crop make a good showing, with good prices. The export trade of some manufacturers shows a recent increase in volume.

The Presidential contest is nearing the end without showing the demoralization in trade usually expected, or, we might at least say, feared by many. The Philippine question appears to be the one active problem that is much discussed, and whether it was or is wise for either party to agitate it is a matter on which the average man, and even sections of the country, differ. This being the case, it is natural the average man should try to the best of his ability to investigate and intelligently look at both sides of the question so far as it is in his power before election day. It is, however, somewhat strange that two political parties, rather than individuals irrespective of party, should differ in this matter to the extent of agitating the voter. This thing does not help trade nor is it likely to help either party in the issues they have taken, nor is it certain that either party represents the views of all who expect to vote its ticket. Should it not be a national question rather than a party question?

Prices of goods remain without any material change and collections are fair.

Cleveland.

THE W. BINGHAM COMPANY.—Business conditions in this section are very good and jobbers report continued prosperity. A larger number of orders have been handled in the last 60 days than a year ago for the same period. The orders, however, are not quite so large. Customers have ordered frequently, and at the present time are ordering in more liberal quantities than heretofore, proving that stocks must be depleted and the merchants throughout the country having a good trade. The frequent and large demand for nails and other staple goods in the hardware line goes to show that there is a large amount of business throughout the country.

There is now and has been a big demand for house trimmings, and it comes to us of the better class, as these goods are so cheap that people as a rule who are building are using a better class of house trimmings than heretofore. Coal Hods, Elbows, Stove Boards, Fire Shovels and kindred goods that people commence to buy when the first cold snap comes have been going forward in large volume and variety.

On account of the low prices on Axes, Hatchets and Scythes we have sold unusually large quantities in the past 60 days, and merchants who took advantage of the low prices that have been prevailing will get a good profit over the prices that must prevail later on when the odd lots of these goods have been picked up. A great deal of Merchant Pipe and Steam Fittings has been sold to the trade in the past two months and the demand still continues.

From inquiries that we have made we find that on account of the length and severity of last winter not many Skates or Sleds were carried over by retail merchants. Although we have had a very good trade on them so far we advise customers to place their orders early on these goods in order to get the assortment they desire, as they are short season goods and the assortment now in the hands of the jobbers while very good will soon be broken. In general we advise our friends in the trade to keep their stocks of all kinds of goods liberally assorted.

Better give attention now to Cutlery, such as Carvers for Thanksgiving; also Table and Pocket Cutlery and Silverware for Christmas trade. Jobbers now have their stocks in and customers have a fine selection from which to buy at prices that are quite entertaining. On the

whole the outlook for trade right through the fall and winter is very good.

Louisville.

BELENAP HARDWARE & MFG. COMPANY.—Market conditions are rather favorable. There is no noticeable bulge anywhere, but a good comfortable volume of business that employs our best energies and makes quitting time not unwelcome to most of us. We do not, as we intimate above, have to take any violent remedies for "that full feeling" which we occasionally see recommended in posters and health advertisements, but we get our requisite number of mails per day, and are on the whole satisfied. In short, it seems to us as though business was as near normal as it gets to be, and we think we see in our mind's eye the semaphore set to the angle that we may "proceed with safety."

Quite a number of people in the country parts are embarking in business, as their accumulation of the last few years' prosperity justifies. An especially good sign is the continued purchase of improved quality domestic utensils, Steel Ranges, Cook Stoves and their outfits, the better grades of Enameled Ware, higher priced Sewing Machines, and such articles, which indicate better living for farmers' wives and daughters, and possibly better cooking for himself, with less of the "deadly frying pan" than heretofore.

The spread of educational institutions, in the South particularly, is also a hopeful sign. There never was a year when the election took up less time. Nothing can be said further that has not already been said, and where partisan color is so very manifest, as in certain newspapers, there is a great deal of time saved by liberal skipping. We can save our lives very easily by not swallowing the pins.

The era of labor peace which we were pleased to note as existing in Chicago in our last has been broken up by the transfer teamsters' strike, and there is cutting of harness and disabling of stock, and, worst of all, beating of their fellow men. This and the coal drivers' strike in Cincinnati, and the still protracted miners' strike in Central Alabama and the surrounding territory, are the only disturbances of moment, if the two former can be so styled.

In our own city there has just been formed a new carpenters' union, said to be made up of some of the oldest and best carpenters in the city, who believe in the open shop, high individual efficiency and compensation accordingly. This is a new departure and one full of promise for the intelligent and industrious workman. The help of organized labor is needed for such matters as regulation of child labor, factory conditions and maintenance of law and good order, and certainly the general betterment of conditions for the workman and his family; but in so far as it operates to hold the better man down to the level of the inferior one, both in performance and wages, it is counter to the interests of the better equipped workingman.

Portland, Oregon.

CORBETT, FAILING & ROBERTSON.—Clearings increased 25 per cent. compared with same week a year ago. A fine rain after drought of five months, ripe strawberries in market at 25 cents a box, grown in the open, make us feel grateful that our lines are cast in a section so good to look upon and live in as the Pacific Northwest.

Reports reached us this week of an Oregon hop yard yielding 2100 pounds per acre after dry season had cut down crop where the four years' average has been 2400 pounds, bringing the producer \$600 to \$700 per acre at present prices, which speaks volumes for that industry. Mr. Ladd's herd of short-horn cattle, taking first prize in world's competition at St. Louis, demonstrates that Oregon is a cattle country. The Oregon fir, with its world-wide reputation, both for rough and finishing lumber, puts us in the van in that line, as demonstrated by St. Louis exhibit.

Altogether the future is bright. The present is a little bit off when trade is compared with the past, but we trust to be able to report better things when we round out this hoodoo year of 1904 and turn into 1905. Politics cut no ice this year as regards influence on business.

Omaha.

LEE-GLASS-ANDRESEN HARDWARE COMPANY—The past two weeks have witnessed little change affecting the distribution of Hardware in the territory west of the Missouri River. Business continues very good in a general way and fully up to expectations. It is certain that Nebraska and Kansas have secured an excellent corn crop, and the existing values should bring a large amount of money into circulation.

Advices from traveling salesmen and reports by visiting merchants who have been present in the market during the month all tend to substantiate the statement that the Western country generally is enjoying very prosperous conditions, with nothing apparent in the future to disturb the present satisfactory outlook.

Collections keep up in a very regular manner, indicating that the retail dealers of the country are in a good condition financially.

NOTES ON PRICES.

Wire Nails.—Mills are fully employed filling contract and current orders. The demand on the mills is somewhat in excess of their capacity and in some instances orders have been delayed in shipment owing to the scarcity of smaller sizes. Concessions in price are still made at competitive points, particularly in the West and South, although there are reports to the effect that independent mills are aggressively seeking business in the East. The tone of the market is, however, on the whole firmer than it has been, and some are buying more liberally in anticipation of a possible advance. Carload prices to either jobbers or retailers are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Carload lots	\$1.60
Less than carload lots	1.65

New York.—An excellent business in small lots from store is being done by local jobbers. There is a temporary lack of small sizes of Nails in this market, including 3 fine to 6 penny common, owing to low stocks of these sizes at mill. The market is firm at the following New York quotations: Single carloads, \$1.79½; small lots from store, \$1.85 to \$1.90.

Chicago, by Telegraph.—Conditions are unchanged and official prices are shaded 5 to 10 cents, according to the stress of competition and the magnitude and tonnage involved. Association prices are as follows: In carload lots to jobbers, \$1.75; to retailers, \$1.80; less than car lots, \$2 per keg, Chicago.

Pittsburgh.—The volume of business in Wire Nails continues heavy, jobbers placing good sized contracts for delivery within 30 days from date of order. At some of the mills a slight car shortage has developed, interfering with shipments to some extent. The American Steel & Wire Company has just completed a shipment of 7000 kegs of Wire Nails for Japan from its works at South Sharon, Pa. The minimum price of \$1.60, in carloads, is now available to practically all buyers, large or small, who buy in that quantity. We quote: In carload lots to jobbers, \$1.60; less than carload lots, \$1.65.

Cut Nails.—The demand is in fair volume, but in most cases orders are for small lots for prompt shipment. While association quotations represent the market in a general way, prices are sometimes shaded about 5 cents, or slightly more, to large buyers. Quotations are as follows: \$1.60 and \$1.65 for carload lots and less than carload lots, respectively, f.o.b. Pittsburgh. In the East Iron Nails are quoted at the same price as Steel Nails, but in territory west of Pittsburgh Iron Nails are quoted in carload lots, f.o.b. Pittsburgh, at \$1.65, with an advance of 10 cents in less than carload lots.

New York.—Demand for Cut Nails continues somewhat in excess of the usual proportion to Wire Nails in the local market. The tone of the market is firm, and distribution is in fair volume. Quotations are as follows: Carloads on dock, \$1.74; less than carloads on dock, \$1.79; small lots from store, \$1.85.

Chicago, by Telegraph.—A fair demand is maintained at from \$1.75 to \$1.80, Chicago, for car lots of Steel or

Scrap Iron Nails, with a premium of about 10 cents for Puddled Iron.

Pittsburgh.—A fair demand is noted for Cut Nails, but, as a rule, buyers are placing orders for actual requirements, not being disposed to contract ahead. We quote Steel Cut Nails at \$1.60, in carloads, and \$1.65 in less than carloads, f.o.b. Pittsburgh. For Puddled Iron Nails mills ask an advance of from 5 to 10 cents a keg over Steel.

Barb Wire.—From the West and South the demand is large, while in the Eastern part of the country it is comparatively small. The leading manufacturers refuse to book contracts except for shipments within 30 days from date of contract. The tone of the market is decidedly firm. The regular schedule of prices is as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Galv.
Jobbers, carload lots	\$1.75	\$2.05
Retailers, carload lots	1.80	2.10
Retailers, less than carload lots	1.90	2.20

Chicago, by Telegraph.—There is no let-up in demand for Barb Wire, and this promises to be almost a record breaking season. We quote: Jobbers, car lots, Painted Wire, \$1.90; Galvanized, \$2.20; retailers, car lots, Painted, \$1.95; Galvanized, \$2.25; less than car lots, Painted, \$2.05; Galvanized, \$2.35; Staples, \$1.85; Galvanized Staples, \$2.15. The jobbers' prices are named to large retailers by certain independent mills.

Pittsburgh.—Demand for Barb Wire from the southwest territory is fairly large, but from other sections of the country is relatively small. The leading mills continue to refuse to book orders except for shipment within 30 days. Prices are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

	Painted.	Galv.
Jobbers, carload lots	\$1.75	\$2.05
Retailers, carload lots	1.80	2.10
Retailers, less than carload lots	1.90	2.20

Smooth Fence Wire.—The demand continues good and mills are well employed in filling orders. The tone of the market is firm. Mills are continuing the policy of entering orders only for shipment within 30 days from date of contract. Quotations are as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carloads	\$1.45
Retailers, carloads	1.50

The above prices are for base numbers, 6 to 9. The other numbers of Plain and Galvanized Wire take the usual advances, as follows:

	6 to 9	10	11	12	12½	13	14	15	16
Annealed....Base.	\$0.05	.10	.15	.25	.35	.45	.55		
Galvanized....	\$0.30	.35	.40	.45	.55	.65	1.05	1.15	

Chicago, by Telegraph.—A good demand is still in evidence, particularly from makers of Field Fencing, who are kept running full force to supply the demand for their product. Prices on base sizes of Wire are unchanged at \$1.60, Chicago, for Annealed, and \$1.90 for Galvanized, in car lots to jobbers. The same prices are named to retailers in car lots by a number of makers.

Pittsburgh.—Demand is fairly large for Fence Wire and the mills are making heavy shipments. There is some talk of an early advance in prices, but this does not come from an official source. We quote as follows, f.o.b. Pittsburgh, 60 days, or 2 per cent. discount for cash in 10 days:

Jobbers, carloads	\$1.45
Retailers, carloads	1.50
Less than carloads	1.60

Wire Cloth and Poultry Netting.—The leading manufacturers in these lines have agreed upon the prices for next season, which, as anticipated, are precisely the same as those for last season. The outlook for business during the year is regarded as excellent, especially in the Screen Wire Cloth, a line in which comparatively little goods were carried over, and for which there is a constantly increasing demand. Thus, notwithstanding the fact that several new factories are in the field, it is thought that the entire production will be readily absorbed by the trade.

Lawn Mowers.—Advices from manufacturers indicate that there is on the whole a perceptible tendency away from cheap Mowers toward those of the better grade and higher prices. This is something in the way of a reaction from the large demand which for a number of years prevailed for the cheap goods, which the trade and consumers generally are recognizing as not desirable on account of their inferior working qualities and durability. A large proportion of the business is, however, still for relatively cheap goods, and the jobbing trade find it necessary and profitable to handle these goods to a large extent. Many of the manufacturers refer with regret to the fact that a good proportion of the Lawn Mowers go out under special brands, and these in most cases are the lower quality Mowers.

Rope.—The higher cost of Manila Fiber has resulted in some manufacturers asking 11¼ cents for Pure Manila Rope in carload lots, and 12 cents for smaller quantities. It is questioned whether these prices are uniformly maintained. Other makers are adhering to former quotations of 11½ to 11¾ cents for small lots, according to quality. Mixed grades are quoted at about 10¼ to 11 cents, according to quality. Sisal Rope is weaker, mixed being quoted at 7¼ cents for small lots, while pure is quoted at about 9 cents in like quantities. Concessions of ¼ cent per pound could probably be obtained in carload lots. The distribution of Rope is in fair quantity.

Window Glass.—The American Window Glass Company has agreed with workmen upon a wage scale which is to be in force from October 6, 1904, to October 6, 1905. The scale provides for an increase of about 20 per cent. wages to cutters and flatteners in machine equipped plants above that paid to these trades in hand operating plants under the scale of the Amalgamated Association of Window Glass Workers. The object of the company in making these terms with the workmen, it is reported, is to attract the best class of operators. Several hand operated factories have started up and more are preparing to resume work, but the unsatisfactory conditions arising from the dissatisfaction regarding the wage scale will probably delay a number of manufacturers from starting up. Demand in the West is improving, but continues light in the Eastern States.

Oils.—*Linseed Oil.*—The market has been dull and bare of new features during the week. There is little desire on the part of buyers to take more Oil than is required for current needs, which restricts sales to small lots. Quotations are as follows: State and Western Raw in carload lots, 37 cents; in five barrel lots, 38 cents. City Raw, in lots of five barrels or more, 41 cents; in less than five barrels, 42 cents per gallon.

Spirits Turpentine.—Business during the week has been confined to light buying, and for the most part purchases have been in small lots. On not a very strong market quotations in this city, according to quantity, are as follows: Oil barrels, 55 to 55½ cents; machine made barrels, 55½ to 56 cents per gallon.

TRADE ITEMS.

THE TROUT HARDWARE COMPANY, Chicago, last week purchased the entire stock of Cutlery of the Lawton Cutlery Company, as well as fixtures, trade-mark and good will. After closing out much of the stock during a three days' sale at 40 Dearborn street, the location formerly occupied by the Lawton Cutlery Company, the Trout Hardware Company removed the balance of the stock to its own store on Lake street. As mentioned a few weeks ago, the Trout Company has also effected a consolidation with Wallis, Robinson & Co., a prominent firm of jobbers and special agents in the Hardware trade. Both Mr. Wallis and Mr. Robinson have allied themselves with the Trout Company and have transferred all of their most desirable factory agencies to that firm, as well as stock carried at their late quarters, 202 Lake street.

OHIO TOOL COMPANY, with factories at Columbus, Ohio, and Auburn, N. Y., advises us that it is not now selling its products to catalogue houses, having discontinued relations with them at the request of the jobbing

and retail trade. The company's line includes Iron and Wood Planes, Chisels, Drawing Knives, Gouges, Auger Bits, Bench and Hand Screws, Handles, &c.

In the article descriptive of the St. Louis exhibit of Bommer Brothers, Brooklyn, N. Y., in our issue, 6th inst., we were in error in stating that their exhibit was located at the corner of aisles 5 and 6 in the Palace of Manufactures. The firm's display will be found at the junction of aisles 5 and C.

THE BRIDGEPORT GUN IMPLEMENT COMPANY, Bridgeport, Conn., will hereafter devote itself entirely to the manufacture of Gun Implements. It has sold its Bicycle Pedal department to the Standard Spoke & Nipple Company, Torrington, Conn., and its Forstner Auger Bit department to the Eagle Bicycle Mfg. Company, Torrington.

C. W. MOORE, who was for some years with J. W. Beach, Metals, Bridgeport, Conn., as a salesman and early this year started in business on his own account at 44 Fremont street, is now located at the corner of East Washington and Housatonic avenues, Bridgeport, where he has good facilities for conducting his business, which is largely in the line of Washing Brass Filings, Sweepings, &c.

NATIONAL HARDWARE ASSOCIATION AND ATLANTIC CITY MEETINGS.

WE are advised that already a larger number of members of the National Hardware Association have signified their intention of being present at the tenth annual convention, to be held at Atlantic City, November 16, 17 and 18, than had so indicated 30 days in advance of any previous convention. Upward of 125 houses will be represented, some with three or more delegates; and a very large number of those in attendance will be accompanied by wives and daughters, for whose entertainment special provision has been made.

The first morning session will be an open one, the special feature being a colloquy on the subject, "What Are the Proper Avenues for the Distribution of Hardware and Kindred Lines?" One or more prominent manufacturers will respond. W. P. Bogardus, president of the National Retail Hardware Dealers' Association, and representatives of the Canadian Wholesale Hardware Association also will be introduced.

On the afternoon of the first day an executive session of the association will be held, and in the evening the delegates will attend a reception tendered by the American Hardware Manufacturers' Association. Thursday and Friday will be devoted to a consideration of the business of the association, a review of the past year's work and an adoption of a policy for the future year. On Thursday afternoon the delegates will attend a meeting of the American Hardware Manufacturers' Association.

On Thursday evening the ladies will conduct a progressive card party, to which it is anticipated that the gentlemen will be invited. Manufacturers who desire to advertise their products will have an opportunity of sending samples of their commodities as prizes. The usual beautiful plates, laces, parasols, canes and umbrellas will not be awarded, but instead the committee of ladies will distribute as prizes Axes, Clothes Wringers, Lawn Mowers, Sweepers, Carving Knives, Washing Machines, Door Locks and any other Hardware which may be sent them for this purpose. It is arranged to have these prizes on exhibition during the day of the party, each prize being plainly marked with the name of the donor.

On Friday evening the National Hardware Association will give the annual banquet at the Hotel Rudolf. The subscription price will be \$5 per cover. Further particulars in regard to this event will be given later. It promises to be successful in every way. The talent will all be selected from the ranks of the Hardware jobbers and manufacturers.

The railroad companies of the country have made a rate of one and one-third fares for the round trip, certificate plan. The official headquarters of the association will be at the Hotel Rudolf, the rates being \$3, \$4 and \$5 per day, American plan.

REQUESTS FOR CATALOGUES, &c.

The trade are given an opportunity in this column to request from manufacturers price-lists, catalogues, quotations, &c., relating to general lines of goods.

REQUESTS for catalogues, price-lists, quotations, &c., have been received from the following houses and are referred to the manufacturers:

FROM O. E. BLACKDEN COMPANY, Dexter, Maine, which has recently commenced the Stove, Tinware and plumbing and heating business.

FROM BAIRD & MAGIE, Pittsburgh, Kan., who have recently begun business as dealers in Shelf Hardware, Stoves, Tinware, Sporting Goods, &c.

FROM J. C. HAMFSON, Amoret, Mo., who has succeeded J. A. McElroy in the Shelf and Heavy Hardware, Stove, Implement, Sporting Goods, Buggy and Wagon, and Harness business.

FROM D. & J. HOERNER, Dubuque, Iowa, who have lately purchased the Hardware, Stove and Paint business formerly conducted by Fred. Roehl.

FROM J. T. CLARKSON HARDWARE COMPANY, Corpus Christi, Texas, successor to Bluntze Hardware Company in the wholesale and retail business.

FROM ODOM-MARTIN HARDWARE COMPANY, New Decatur, Ala., which has lately commenced business as dealer in Shelf and Heavy Hardware, Stoves, Harness, &c. Chas. Martin, who is manager of the business, has had 15 years' experience in this line, both wholesale and retail.

FROM SIMMONS BROS., Kingston, Ontario, who have added a complete Hardware department to their former plumbing and tinsmithing business, leasing for this purpose the adjoining premises. The new department, in addition to Shelf Hardware, will cover Stoves, Tinware, Paints and Oils, &c.

FROM DAVIS & DAULTON, Pacific Junction, Iowa, who are successors to Davis & Anderson.

FROM WILBUR A. COCHRAN, Culdesac, Idaho, dealer in Hardware, Stoves, Tinware, Paints, Glass, Queensware, Agricultural Implements, Machinery, &c., who is now erecting a new store to take the place of the one destroyed by fire last June. The new building is of brick, 48 x 117 feet, fronting on three streets.

FROM FIFER & BEATTY, Front and Lehigh avenues, Philadelphia, who have lately purchased the General Hardware and Mill Supply stock of M. L. Magie & Co., and continue at the old stand.

FROM RAFFAUF & HYDE, Rome, N. Y., dealers in General Hardware. Their catalogues and price-lists were damaged in a recent fire, and they request manufacturers to send copies of their latest printed matter, with discount sheets.

FROM J. F. NOLAN, Livingston, Mont., who has succeeded Nolan Bros. in the wholesale and retail Hardware, Stove, Implement, Paint and Sporting Goods business. Mr. Nolan has built a 60-foot addition to the store.

FROM F. G. HAVER, Knox, N. D., who has purchased the Hardware business and building formerly owned by H. L. Ugland. The new proprietor has added \$1500 worth of stock, including a line of Harness.

FROM JOHN A. BAYLISS, Milwaukee, Wis., who has bought the Hardware business formerly conducted by Frank R. Pierce, wholesale and retail Hardware, Paints, &c. A. Redford of the Redford Hardware Company, Waukesha, Wis., has become associated with Mr. Bayliss, and will manage the business.

LYON BROTHERS' CATALOGUE.

LYON BROTHERS, Chicago, who sell to merchants exclusively through the medium of a catalogue, have issued an unabridged fall and winter catalogue of more than 1000 pages, in which a vast assortment of general merchandise is shown, including many articles in Hardware, Tinware, Cutlery, Stoves, Sporting Goods, Harness, Vehicles, &c. An insert of 228 yellow pages is devoted to holiday goods, embracing Toys, Games, Mirrors, Clocks, Silver Plated Ware, Hollow Ware, Vases, Cut Glass, Musical Instruments, &c.

PRICE-LISTS, CIRCULARS, &c.

Manufacturers in Hardware and related lines are requested to send us duplicate copies of catalogues, price-lists, &c., one copy for our Catalogue Department in New York and another for our London office; and at the same time to call our attention to any new goods or additions to their lines, of which appropriate mention will be made, besides the brief reference to the catalogue or price-list in this column.

McKINNON DASH COMPANY, Buffalo, N. Y., with factories also at Troy and Cincinnati, Ohio, and St. Catharines, Ont.: Catalogue No. 9, illustrating Dashes, Fenders, Roll Up Straps, Prop Block Washers, Shaft Leathers, &c.

KOKOMO FENCE MACHINE COMPANY, Kokomo, Ind.: Catalogues and price-lists devoted to Ornamental Fencing in several styles for residences, lawns, parks, cemeteries, &c.; Gates, Posts, Fence Machines, Colled Spring Fencing, &c.

NORRIS & LORING HARDWARE COMPANY, Cedar Rapids, Iowa: Illustrated catalogue and price-list containing 144 pages relating to fall and winter goods, 1904-1905.

SARGENT & Co., New Haven, Conn., and 149-153 Leonard street, New York: Booklet of 40 pages of descriptive suggestions concerning Sargent's Gem Food Chopper for the Hardware dealer only. It contains many ready to use advertisements, both with and without illustrations, in single and double column and of varied length.

H. L. JUDD COMPANY, 87-89 Chambers street, New York, with factories at Wallingford, Conn., and Chattanooga, Tenn.: Catalogue No. 42, containing 237 large pages, fully illustrated, showing full and complete lines of Upholstery Hardware, including Rods, Poles, both wood and metal; Pole Linds and Trimmings, Rings, Brackets, Chains, Drapery Pins and Hooks, Tassels, Pulleys, Knobs, Cord, Stair Rods, Eyes, Nails and the various details pertaining to the trade.

VICTOR MFG. COMPANY, Newburyport, Mass.: Illustrated catalogue devoted to Tin Armored Fire Proof Doors and Shutters, Heat Closing Devices, Stay Rolls, Wedge Locking Bolts, &c.

WEED & Co., Buffalo, N. Y.: Pages for insertion in the firm's catalogue, relating to the revised lists on Steel Goods and Hickory Handles.

FRANCIS & Co., Hartford, Conn.: Folder relating to Diamond Hand Tools for truing emery wheels, Glass Cutters, &c. They also make Special Tools to order of all shapes or designs. The firm are importers of diamonds for all mechanical purposes, and refer to the superior quality of the tools which they manufacture.

BUTLER BROS., New York City: Large yellow folder, in which attention is called to "Bargain Specials." A good proportion of the articles are of a Hardware character, and the prices named to dealers are good for acceptance to October 31.

PENNSYLVANIA WOVEN WIRE COMPANY, Lock Haven, Pa., now has its new plant in operation, and will be ready very shortly to send out samples of its product in Screen Wire Cloth. The company is capitalized at \$125,000, with R. W. Fredericks as president; Charles Kreamer, vice-president; Reese Kintzing, who designed the plant, secretary and treasurer, and George Kreamer, superintendent.

JOBBER'S SPECIAL BRANDS.

We continue in the following columns the discussion of the subject of special brands, to which extended reference was made in our last issue. The interest which is evinced in the matter indicates that the consideration which will be given to it at the approaching conventions at Atlantic City will command the closest attention of both manufacturers and jobbers. A significant feature in the discussion is the expression of the opinions of retail merchants in regard to special brands. The substantial unanimity with which they desire the manufacturer's name on the best goods has an important bearing on the question.

THE OPINIONS OF THE TRADE.

THE question, however, is brought up by some whether there is much hope of doing away with the practice, or even of diminishing to any important extent its acknowledged evils. This position is taken by some manufacturers who deplore the condition and more or less resignedly accept it. This spirit is expressed by a well-known manufacturer of New England, who says:

There is no question that the special brand feature of business is an evil and a great additional expense to manufacturers. There is no possibility, however, of overcoming this trouble, as no agreement which manufacturers would make would be lived up to in the face of a dull season. In our opinion, therefore, it is a waste of time to discuss the matter in conventions.

Another manufacturer points out that it makes material difference what the class of goods is to which the special brands are applied: In certain classes of Hardware articles in which the quality is important, the manufacturer's name should be retained in all cases, but in other lines of cheap and common goods which do not sell on their reputation or merit, and are practically the same whether made by one manufacturer or another, their being sold under the jobbers' brands does no harm. In this way these correspondents practically add their testimony to that of many other manufacturers whose letters were given in our last issue to the effect that, as a rule, special brand goods are of lower quality than those which bear the manufacturer's name. Other phases of the subject are touched upon in an interesting way in the following extracts from letters of manufacturers, nearly all of whom occupy a prominent position in the trade:

DISADVANTAGES OF SPECIAL BRANDS TO MANUFACTURERS AND THE TRADE.

From a Leading Manufacturer: The question of special brands is a very serious one from the standpoint of a manufacturer, because the disposition of most manufacturers is to oblige their customers to the extent of their ability. The occasional placing of jobbers' special brands on some certain lines of goods did not, when that practice was first inaugurated, appear objectionable. The custom, however, has grown to such an extent that the jobber now desires special brands on all goods purchased.

Loss of Individuality The individuality of the manufacturer is lost to the extent to which this practice is carried. In many lines of goods there is nothing which would bring the name of the manufacturer before any class of people interested in the trade, except to the buyer in the jobbing house. As a fact, the salesmen of the merchants are rarely informed concerning the source of supply. As the result, the manufacturer has no trade which the merit of his goods can command, except in the buyer's department of a few jobbing houses, and there his identity is submerged. I cannot discover any advantages in thus abandoning everything which belongs to the good will of a long established manufacturing concern through a custom by which even the smallest jobbers require to have their names appear on each article, as if to carry

with it the impression that they (the jobbers) are really the manufacturers of such articles and responsible for their quality. Neither catalogue houses nor syndicate buyers ask this concession from manufacturers. The result is that the manufacturer has nothing whatever to advertise to the public, unless he sells to the consumer or to the retail trade, both of which, I imagine, would prefer to see the manufacturers' brands on goods purchased.

RETAIL HARDWARE MERCHANTS PREFER MANUFACTURERS' BRANDS.

IN order to ascertain the feeling of the retail trade in regard to special brands we addressed an inquiry to a number of representative retail Hardware houses situated in various parts of the country, asking them to advise us whether for their best Tools they sell the jobbers' special brands or goods bearing the manufacturer's name. The replies are almost unanimous in favor of the manufacturers' brands, as indicated in the following extracts:

From a Merchant in Illinois: Our experience is that goods bearing the manufacturer's name are a great deal more uniform and a great deal more to be depended upon than goods bearing jobber's special brand. The jobber's brands are not always made by the same factory, and one year may run good and the next year very poor, but goods bearing the manufacturer's own brand and the manufacturer's name are sure to run uniform, as they are made by the same people all the time.

From Merchants in Indiana: We are decidedly opposed to handling tools under jobbers' brands and handle only goods bearing manufacturer's name—except in extreme cases. We believe, as a rule you will find the special brands in small stores, where they buy exclusively from jobbers.

From a Pennsylvania House: I am not in the habit of handling goods under special brands, preferring to enjoy the benefit of the reputation of firms who have been making the goods all the way from twenty to eighty years. All we ask is some protection in the matter of price, and that such manufacturers will not sell our customers as low as they do us.

From an Iowa Merchant: We find it much easier to sell well-known goods bearing the manufacturer's brand than to sell the special brands of jobbers; it takes argument to sell the special brand, the well-known manufacturer's brand sells itself. The only trouble with selling the well-known brand is that it is usually sold by catalogue houses at almost our cost.

From a House in New York State: By all means we prefer the manufacturer's name on our best tools. We have found that they are much easier to sell, and generally the customer is better satisfied in his mind.

From a Merchant in Connecticut: We handle goods bearing the manufacturer's name in all cases.

From a House in Virginia: We will not buy goods bearing the jobber's special brand. We sell goods bearing the manufacturer's brand, for our high standard goods and for the cheaper grade of goods would prefer to have no brand on them rather than the jobber's. We believe that there are some manufacturers who would be as conscientious in manufacturing special brands for the jobber as they would be brands to go out under their own names, but there is too much room for deviation from this rule.

From a New York State Merchant: Manufacturer's name is what the consumer wants.

From a House in Iowa: We sell very few jobbers' brands, believing it to be to our best interest to sell the best grades of goods under well known manufacturers' brands.

From an Ohio Firm: The manufacturer's name certainly.

From an Indiana House: We prefer decidedly to buy goods bearing the manufacturer's own name, for we know then that we can always depend on the quality. We buy most of our goods direct from manufacturers and very few from jobbers. Many years back we had our name stamped and labeled on edge tools made for us by some of the best manufacturers and paid the price for best brands, yet they did not turn out to be as good as those sold under their own name, so we quit this. As for jobbers' special brands we doubt very much whether they will equal best manufacturers' own brands, judging from what little experience we have had with them.

From a Michigan Merchant: Special brands mean nothing. The manufacturer's name always.

From a Merchant in Virginia: I prefer for my best goods those bearing the manufacturer's name.

From a Firm in New York State: We have always been opposed to jobbers' special brands, as we believe that if there is any merit in goods the manufacturer's name has a great deal more bearing on the retail trade than any jobber's could possibly have.

From a Pennsylvania Merchant: We at all times prefer goods from the manufacturer with his name thereon.

From a New York State House: All of our best tools bear the manufacturer's name. Jobbers' special brands have no significance to us.

From a New Jersey Merchant: For best goods we use manufacturers' brands. We do not go to the jobber for anything we can buy enough of to deal direct with the manufacturers.

From an Illinois House: We consider manufacturers' brands best for our trade. We rarely buy special brands.

From a Pennsylvania House: Our position has always been to sell the best Tools under the manufacturer's name or brand, nor do we see wherein the live retailer of to-day can be a success in selling Tools under jobbers' special brands. The Jobbers of to-day who use special brands on Tools do not always get them from the same manufacturer, but if they are running a special brand on certain Tools which several manufacturers make, they get them from the maker who will give them the best price. We say advertise the manufacturer, not the jobber.

From a Merchant in Virginia: We prefer to handle the better grade of goods, with the manufacturers' names on them, as it shows to the buyer that he is getting a standard article that is beyond question as to its maker.

From New York State Merchants: We would go so far in the matter of a manufacturer sending out goods under a jobber's name that we would not buy them under any circumstance. It's an indication of an inferior quality. People know a good name and do not know a jobber's name.

From a Merchant in New Jersey: I prefer every time goods with manufacturer's name on, or, in other words, goods that are standard all over.

From an Illinois House: The mechanic who buys the best Tools always wants the manufacturer's name on the Tool.

EXTRACTS FROM LETTERS OF RETAIL HARDWARE MERCHANTS.

IN the following letters our correspondents refer to some phases of the question in regard to the advantages and disadvantages of handling special brands as distinguished from goods that bear the manufacturer's name. The points thus made are certainly deserving consideration:

Manufacturer's Name Should Always Stand for Best Quality.

From a New Jersey Merchant: As a rule we sell best quality of goods under the names of the manufacturers or their brands. The manufacturer's name should always stand for his very best quality and make of goods. If a manufac-

turer adopts his own or a brand name for his best he should always retain that brand. If he improves on the quality the same best brand should always follow it.

Regulating Special Brands

We see no detriment to the manufacturers in making or furnishing any of their grades of goods under special brands to the jobber or retailer where they can control and regulate the price and can prevent any abuses that may arise. If they find the jobber is closing the market for their own goods they have it in their power to offset it and preserve their identity.

Special Brands a Mixture of Best and Second Grade.

From a Merchant in New York State: For our best goods we sell those with the name of the manufacturer upon them. I purchase very little from jobbers. From manufacturers I purchase both grades. Most of the manufacturers of general hardware make goods upon which they stamp their own name, and these they warrant; and they make goods which they stamp with another name, which they do not warrant. The latter are lower priced and frequently just as good. With locks,

Warranted and Unwarranted Goods

front door sets, &c., this plan is not pursued. In purchasing from jobbers we generally expect to find special brands with a mixture of best and second grade. There are exceptions, but this is the general result. In some certain articles the manufacturers favor the jobbers and discourage selling to retailers, but this is the exception, not the rule.

Jobbers' Brands Sometimes Cheaper.

From a New Jersey Merchant: We prefer manufacturers' brands, although we have sometimes handled jobbers' brands with entire satisfaction. It all depends on who the jobber is. We have a line of files, jobber's brand, which we have been selling for quite a long time, and they give us no trouble at all, and when any jobber's brand is tested and proves equal to the manufacturer's brand at a saving of from 10 to 15 per cent., of course we think it is to our advantage to handle it.

Prefer to Advertise Themselves or the Manufacturer.

From a Pennsylvania House: We buy no goods from jobbers, and if we did would be sure to keep away from special brands, as we prefer to advertise ourselves or a first-class manufacturer who has the courage to sell his own goods on their merits and refuses to place any brand but his own on his goods. Special brands in almost every case are gotten up to deceive the buyer, are inferior in quality, and the main object is to sell the goods at the same price or perhaps a small percentage below what you can buy manufacturers' goods at, enabling the jobber in every case to make more money and avoid competition. We are surprised why any sane retailer will buy special brands in preference to those bearing reputable makers' names, as he doesn't know anything about what he is paying for the goods, and we are just as much surprised to find that a large number of manufacturers really make it a point to get orders for goods under special brands, some of them with an already established reputation on their goods. No special brands for us.

Deception and Inferiority

No Faith in Special Brands.

From Ohio Merchants: We are not in favor of special brands. We have no reason to believe that they are as good as goods with the manufacturer's name on them. We can see no reason for a manufacturer making the best goods he knows how to make and then letting some one else get the credit and advertising that would naturally come from the sale and using of first-class goods.

From our experience we have no reason to pin our faith on any statement from any source that special brands are as good as the goods with the manufacturer's name stamped on them. We never have sold special brands on a warrant and had our customer keep the goods. We seldom have goods returned that are stamped with the maker's name. If we do, we know where they came from. Special brands are a delusion and a snare. This season they are manufactured by one man, next year for a 2 per cent. difference they are manufactured by some one else, and there is no counting on the quality.

We think the manufacturers are largely to blame for the condition of things at present. They have been too eager to sell, and have evidently forgotten that there are days yet to come, and that "chickens always come home to roost."

A Delusion and a Snare

Why Special Brands Are Not a Good Thing.

From Indiana Merchants: We buy in such quantities that it is not often that jobbers are able to give us a satisfactory price, so that our purchases are chiefly from the manu-

facturers. However, when we did buy from the jobber we never considered his special brand a good thing for the retailer for several reasons:

First. The jobber is more liable to change the quality of his goods, because he will seek for the lowest market and place his orders with one manufacturer this year and another next, and the two manufacturers are not likely to strike the same quality.

Second. The jobber's name does not stand for much, excepting as an advertisement, whereas the manufacturer's name stamped upon a tool guarantees its quality and stands for everything.

Third. Jobbers come and go, but with a manufacturer there is more permanency, so that if a retail merchant works up a trade on a particular brand he is more likely to get it for an indefinite length of time than he would be if it were a jobber's brand. Of course, there are exceptions, and some jobbers are here to stay.

Fourth. The retail dealer is the man who faces the consumer every day, hears all complaints, is compelled to guarantee the quality and to take back imperfect goods, and we have found that we have had much better satisfaction in taking up such matters with the manufacturer whose name is upon the article than we could through the jobber whose name was upon the article. For instance, we had a complaint on the quality of some Pocket Knives sold by a jobber under his brand. We made complaint to the jobber, and the jobber was not quite sure who made the Knives, having had several manufacturing establishments make them for him of the same pattern and to all appearances the same Knife. So the jobber did not know where to file his complaint. This same thing might apply to any jobber's special brand of any article where the contracts for making them are made with different firms. The fact of the matter is we have found after 20 years' experience that the consumer prefers to see the manufacturer's name stamped upon the article, and for this reason we get no goods whatever with our own name or any special brand upon them. We find that it is to our advantage and that our trade demands it also.

A Jobber's Perplexity

being made under contracts that may be placed with a half dozen different manufacturers in as many seasons is likely to result in as many different standards of quality. With a jobber's special brand continual work and advertising are required to make the brand known, and although it may be perfectly well known by the retailer's regular trade, let a mechanic from another town come in and he may be entirely unacquainted with the name of this particular brand, but he is almost sure to know of the established brands of manufacturers.

Disadvantages of Special Brands.

From a Kentucky Hardwareman: I sell very few goods under jobbers' special brands, and on the best goods I want the manufacturer's name. I think there are quite a number of reasons why it is to the retailer's advantage to sell well-known manufacturers' brands. First, as a rule, the quality is apt to be of a uniform standard. The jobber's special brand

Many Standards of Quality

After building up a trade upon a jobber's special brand you are practically at his mercy as regards prices, and if, as sometimes results, you chance to have some differences and discontinue, you have lost years of work. Not so when handling manufacturers' brands. They can be had from any first-class house and you have not only competition, but can have your choice with whom to deal.

These are a few of my reasons for preferring manufacturers' brands.

Wasted Time

SOME GOOD WORDS FOR SPECIAL BRANDS.

A VERY few of the retail merchants to whom we have written, who also do something of a jobbing business, express themselves in favor of special brands. In some cases, at least, it will be seen that they write in favor of their own brands:

From a Firm in Pennsylvania: Our experience has been that where the manufacturer's brand is a well-known one and fully advertised, having been on the market for years, we find it better to sell under his brand. But we have also had good success in selling a staple line on our own brand, providing the same was of a good quality and fully warranted by the manufacturer.

From a House in Pennsylvania: Certain lines, notably Hatchets, Axes, Pocket Knives, &c., the best Tools we sell, are made up for us under our own brand, while in those lines of goods which we use in smaller quantities we handle the manufacturers' brands.

We do this for two reasons: First, so that we can control the price, and, second, that the name of the house may be identified with our best goods. We have found this policy to be quite advantageous and we would regret any move on the part of the manufacturers which would discourage it.

From a Virginia House: We prefer to sell our best goods under special brands, the reason being obvious: Most of the factory brands of well-known goods are sold in most cases at practically no margin of profit.

WHAT MANUFACTURERS SAY ABOUT JOBBERS' SPECIAL BRANDS.

Special Brands Undermine the Manufacturer.

From a Manufacturer of Edge Tools: Special brands are, in my opinion, very detrimental to the interest of manufacturers, and they are not essential to the success of the jobber.

They are used by the jobber to drive the brands of the manufacturer out of the market. He loses his identity, the consumer never knows whose goods he is using, and never calls for the manufacturers' brands. The manufacturer gets no benefit from his efforts to make the very best goods of the kind, as he is at the mercy of the dealer, who owns the brand and who can change manufacturers any time, and often does so to the maker's sorrow. The manufacturer thus loses the business which he has worked years to establish, and is back where he started with no demand for his goods which will yield him a profitable price.

Back Where He Started

Special brand goods are sold by the manufacturer at lower prices, notwithstanding the fact that they cost considerably more than his regular brands, which he carries in stock for prompt shipment. Buyers always want something new to make the goods more attractive, such as fancy labels on goods and packages, a little more polish and more advertising matter, all of which the manufacturer is expected to pay for, even to the extent of contributing to cost of catalogues which show only the jobber's brands. He thus pays to run his own brands out of the market and gets less for what he sells. The jobber buys for less than the price of the manufacturer's brand and tempts him to reduce the grade. Then he complains and continually urges the manufacturer to put a little more work on the goods.

Heads I Win Tails You Lose

Special brands are the result of the sharp competition between manufacturers, each of whom thinks he should have all the trade and yet does not want to reduce the price of his standard brands. He must sell his product, therefore he increases the pressure on his salesmen and allows them a little more liberty on special brands. The jobber takes the goods at the cut price and puts them on the market at even a higher price than standard manufacturers' brands, and thus by what he calls good salesmanship realizes a good profit, while Mr. Manufacturer is wondering why his regular brands do not sell. He seems not to understand that he is cutting the ground from under his own feet.

The jobbers approve of special brands because they have no such competition on them as they have on goods which have such an established reputation as to compel all jobbers to carry them in stock. They have the advantage of working one manufacturer against the other to get lower prices, and never seem to think that every time a price is reduced to them their neighbor is favored in the same way and they have gained nothing by the loss to the manufacturer.

Working One Maker Against Another

American manufacturers as a rule value trade-marks and brands too little and are ready to trade them off any time for volume of business. Their chief concern is to get business and let profit and reputation for fair dealing take care of themselves.

Over production and pressure to sell are the prime causes of the demand for special brand goods, though no doubt the jobber will say he is obliged to have special brands, the selling price of which he can control and get a profit which he cannot realize on manufacturers' brands.

Co-operation If manufacturers could secure the co-operation of the jobbers in establishing selling prices to the retail trade, much of this trouble and loss might be avoided. This seems to be impossible. The millennium has not yet come, and when it does it is doubtful if the Hardware buyer will give up the idea that the smartest thing he can do is to break a combination price, which is a real help to him in regulating the selling price.

THE WHITAKER MFG. COMPANY, manufacturer of Drop Forge Wrenches, Twist Drills, Chucks, &c., Chicago, will remove about November 1 to larger quarters at 50-52 South Canal street.

FACTORY COST AND BUSINESS METHODS.

DESIRABILITY OF ENCOURAGING SUGGESTIONS FROM EMPLOYEES.

THE discussion in our columns in regard to the desirability of calling out suggestions from workmen, and the descriptions given of various systems by means of prizes or otherwise for the purpose of encouraging such suggestions, have brought out the following communications from manufacturers. It will be seen that most of them recognize the importance of doing something along this line, although in other cases experiments in this direction were not successful. Many of our correspondents, it will be seen, are, however, intending to adopt some plan for the accomplishment of the desired result:

Labor Troubles Overcome.

From a Plant in Tennessee: We have never experimented along the line of encouraging employees to make suggestions. We have read all your articles on this subject and are not surprised to learn that the majority discountenance such an endeavor. The one establishment that has caught the true spirit is the Coldwell Lawn Mower Company. Without conscientious effort on the part of the employer to award his premiums equitably a lurking suspicion on the part of the employed would keep them from giving thought to the plan. We have in mind an instance where such a competition was invited in haphazard fashion. Suggestions were received, and one was adopted, when absentmindedness set in, and the suggestor was not even advised of the success of his efforts. We hope some day to introduce the idea into our plant, but have learned the lesson that until a well devised plan is inaugurated it is useless to make the experiment. Some day all labor troubles will be overcome by such methods of equitable co-operation between employers and employed.

Conscientious Effort

Have Always Discussed Shop Matters with Their Men.

From a New York State Plant: We have never taken any steps to encourage suggestions from our workmen other than the encouragement given them by the close relations which we have always maintained with our men, constantly talking over shop matters with them. We shall watch with interest the discussion of this subject and may possibly be brought to believe that a systematic effort toward the encouragement of suggestions from our men may be worth while. As we view the matter at present, however, we believe that for us to adopt the premium system in this connection would be likely to result in more of an expense to us than a benefit.

Will Give Idea a Trial.

From Manufacturers in New Jersey: We long since considered this matter, but omitted to put it in practical operation, fearing jealousies would work harm rather than fulfill the aim intended. We fully intend, however, to give it a trial, and believe, if properly safeguarded, results to mutual advantage of employer and employed may be attained.

Mutual Catering to Self Interest.

From a Connecticut Plant: We have never made any direct offer of prizes. However, this plan worked satisfactorily, utilizing such suggestions as employees made in a way either to lighten their work or increase their pay, and perhaps make a saving to the company. In short, a mutual catering to the grain of self-interest underlying all effort.

Shall Adopt a System.

From an Ohio Manufacturer: We have had this matter in mind for some months, and think we shall adopt a system on the lines laid down in your articles or similar ones. It has always been a plain case to us that if a workman can be induced to put his mind to work on that which he is doing he will be able to improve both product and method and benefit himself and employer.

Have Received Many Suggestions.

From a Vermont Plant: We have never gone into the matter in just the way indicated by the Coldwell Lawn Mower Company. We are pleased to state, however, that we have received at various times a good many suggestions from employees which have been of considerable value.

Worthy of Careful Consideration.

From Another Pennsylvania Plant: We have been much interested in the articles in *The Iron Age* and believe that the idea of offering prizes for suggestions from employees is worthy of very careful consideration and adoption in many instances.

Alive to the Benefits.

From a Connecticut Manufacturer: While we have not adopted a method of giving prizes for suggestions, we can readily understand the benefits to be derived from it, and it seems to us to be along the lines of modern improvements in conducting large and complicated manufacturing enterprises. We have been keenly interested in reading the articles in *The Iron Age*, and the adoption of such a course as indicated must most certainly result in mutual benefit to the employee and employer. We look for this system or something similar to become more common.

Better Work and More Pay.

From Manufacturers in New York State: We have no system of rewarding employees for suggestions further than giving them better work and more pay if possible. We have had a few men who have suggested improvements in the manner of doing their work.

No Organized System, but Reward Suggestions.

From Connecticut Manufacturers: We feel in close personal touch with our men at all times and are constantly giving and receiving suggestions. We have no system of reward other than to recognize a man's services by raising his wages if he proves useful in our factory work. We have no organized system of offering prizes for work, but it has several times been talked of by our own men and might work satisfactorily.

Have Considered the Scheme.

From New York State Manufacturers: We have no system of prizes at our plant, although we have considered doing so, with something along the line of the Coldwell Lawn Mower Company's scheme.

No Fixed Rule or Policy.

From Illinois Manufacturers: We have no fixed rule or policy in connection with rewarding our employees for improvements or suggestions made. We take each case as it develops and try to do for the person whatever his suggestion will merit. We are very much interested in the articles you have published and shall give some thought to the creation of a definite plan in accordance with the suggestion thus given.

DILLON-GRISWOLD WIRE COMPANY.

AT a special meeting of the Dillon-Griswold Wire Company, Sterling, Ill., Chester Griswold, who for nearly two years has been treasurer of the company, was elected president, he also still retaining the treasurer-ship. At the same time John B. Howat, formerly chief engineer of the Sharon Steel Hoop Company, Sharon, Pa., and Robert McCosh, who has been the company's secretary and treasurer, were elected directors of the company, succeeding C. M. Wicker and H. C. Wicker, who were president and general manager, respectively. Mr. Howat has been made general manager, and will give the position all of his time, while Mr. Griswold, with headquarters in New York, will spend a large portion of his time in Sterling. The new management contemplate some improvements and changes in the future, and in the meantime have added two new square mesh Fence machines to their equipment, and are building two new diamond mesh Fence machines.

W. R. BERRYMAN, 320 Broadway, New York, has recently established himself as the representative in this territory for several manufacturers of Twines, Cordage, &c., made of flax, hemp, jute, cotton and sisal. Mr. Berryman has had many years of experience in this line. The mills he represents are prepared to make up any kind of a specialty in these lines required by any trade. The goods are put up regularly in cones, balls, tubes, reels, coils, &c., but they can be put up in any style desired by customers, and furnished in any color, shade or tint specified, or according to color and kind furnished. Mr. Berryman aims to give good service, especially with respect to strength and yardage.

Trade Winning Methods.

This department is for the description of approved methods of carrying on and extending business, and a cordial invitation is given to merchants to co-operate in the effort to make it suggestive and of practical use to the trade.

PRACTICAL HINTS CONCERNING } IV. HARDWARE STORE ADVERTISING }

BY GEORGE J. BASSETT.

ADVERTISING CUTLERY.

FROM now on advertise Cutlery. Here's where the Hardwareman should come to his own. And yet in his endeavor to make a half dollar on a ton of Barbed Wire he overlooks the dollars he might make on his Cutlery. No business so rightly belongs to him, but for lack of advertising it often goes to the jeweler or the department store. Judicious advertising will bring back, hold and increase this part of his business, and the keynote of his advertisement should be *quality*.

Quality versus Price.

Unfortunately for the department stores their goods in many places bear the stigma of inferiority—sometimes justly and sometimes without good cause. For the same reason the goods of the Hardwareman are often thought of as high priced, but usually reliable. Here is your chance. Advertise high quality and reasonable prices, and be sure to combine both in your store.

It's less three weeks to
**THANKSGIVING
DAY... NOVEMBER 30.**

If you're expecting the family to dinner you had better look over your table cutlery and see if you have enough to go 'round and whether its good enough. Look at your carving knife particularly. If that's not right we can sell you one that is, with the fork, from \$1.50 up.

Remember that we sell all kinds of table cutlery, knives, forks and spoons, of a quality you can depend upon

The John E. Bassett & Co.
754 CHAPEL ST., - 320 STATE ST.

Start in soon with an ad. like the above and follow it up with something more specific each time. Try to have a brand of goods your competitor doesn't sell and make leaders of certain pieces with prices that will meet department store competition. You may talk your customer into buying a better thing when he comes in, that's your lookout.

Writing An Ad.

There is no trick in writing advertisements. Any one who can sling good live English can do it—all he requires is a little painstaking and a lot of time. The receipt reads something like this:

To an attractive and pertinent heading add about 50 words of straight business talk, well seasoned to taste. Strain thoroughly and remove any superfluous words. Then add the cream of the thing nicely done in italics and garnished with prices. Place in a good newspaper and let it simmer for from three days to a week, but no longer. Remove and try another batch.

252 LOAVES OF BREAD IN WINDOW DISPLAY.

BALLINTINE HARDWARE COMPANY, Warsaw, N. Y., recently made an exhibit at the county fair in which the baking qualities of its leading Range were impressively brought to the attention of the public. In the demonstration one barrel of flour was used, from which, we are advised, 252 loaves of bread were evolved



252 Loaves of Bread in Window Display.

with the consumption of less than a hod of coal. The day after the baking the bread was piled as an exhibit, as shown in the accompanying illustration, and later displayed in the company's show window, where it proved to be quite a drawing card. During the continuance of the fair the company made a special discount of 10 per cent. from the regular price of the Ranges, and effected a number of sales.

A LAWN MOWER GRINDING CIRCULAR AND ITS RESULTS.

THE Lawn Mower season for the present year is past, but the incident narrated below illustrates a principle which, without waiting for next spring, may be applied to many lines of goods. A few months ago a Hardware firm located within 50 miles of New York, who had done some work in sharpening and cleaning Lawn Mowers in previous years, had a quantity of circulars printed on their regular letter heads, in imitation of type writer, and sent out a number of them by mail. The substance of the circular was as follows:

TO OUR CUSTOMERS, AND THOSE WHO ARE NOT, BUT SHOULD BE:

We desire to say a few words on Lawn Mowers. If your Mower needs attention, let us know and we will call for same and return it promptly. We have just installed a new Lawn Mower Grinder and Sharpener to run by electric power, which was especially made and built for us. This will insure prompt and good work, as you know no Mower can be sharpened TRUE by hand.

Our grinder will sharpen any Mower from 10 to 40 inch, and our charge will be as low as is consistent with good work. We furnish repairs for all makes of Mowers. Do not wait until the grass on your lawn is a foot high. Mowers cannot cut that, but send us word early, so you can have your Mower put in shape and have it ready when you want to use it.

P. S.: We also grind Knives and Scissors, repair Carpet Sweepers and Clothes Wringers, put Rubber Tires on Baby Carriage Wheels and mend most anything from a Tea Kettle to a Wash Boiler.

The response was so immediate and Mowers came in to be sharpened and cleaned in such quantities that even the store's improved facilities were inadequate, so much so that the balance of the circulars were not sent out. A good charge was made for sharpening and cleaning the machines, but for this charge the Mowers were returned in practically as good condition as when originally purchased.

Going Out for Business by Retail Hardware Merchants.

THE following letters relate to various phases of the question discussed in our columns as to the desirability of retail Hardware merchants going out actively with a view to marketing their goods instead of waiting exclusively for business to come to them:

Go After Business Aggressively.

From a House in Washington: We believe that retailers should go after business in their communities in an aggressive manner, except Builders' Hardware, Nails and Sash Weights. On these goods the effect of bidding or going after contractors or builders is to reduce the profit, which only benefits the consumers or contractors and damages the retail merchant in the same amount that the others are benefited.

Will Give Canvassing a Trial.

From a House in Ohio: We have thought over this subject a good deal. The writer has been advocating that the retail merchants go out after trade. Still it is a hard thing to do, as the people's wants in the Hardware line are spasmodic. They want a little Hardware in the spring and may not want another thing for a year, but still the writer's judgment is that it would be good policy to go out after the trade two or three times a year at least. It is a question, however, whether this spasmodic solicitation of business would bring any results, but it would be something entirely new, at any rate. If we, in our business, know of any person needing anything in our line, or who would need something in our line in the near future, we go after him and try to secure his order for the goods, at least his promise

Competition of Jobbers

to come and see us before he does anything. This idea the writer intends to put in execution this coming season, and give it a trial, at any rate. Our opinion is, had the retail Hardwareman been more alert years ago and gone after his business the way he should have done the jobbing house would have dropped the retail business long ago, but as it is the jobbing house is our worst competitor. Catalogue house competition troubles us very little, excepting in our farming communities.

No House to House Canvass.

From a Merchant in Michigan: We are in favor of soliciting for certain classes of Hardware from time to time, but do not believe in a house to house canvass in a general way.

Have Been Canvassing for Ten Years.

From an Indiana House: We have four men who canvass the shops and factories in small towns in this vicinity. We also have six men who canvass the farmers within a radius of 25 miles. We have been doing this for ten years, and we find it is a profitable part of our business, and it is absolutely necessary to keep it up or the trade will get away from us to a large extent. We firmly believe that half of the business we get in this manner would go to the catalogue houses, for the average

Catalogue Houses Held in Check small merchant in our territory does not carry in stock the goods that we sell to this trade.

We do not canvass for everything we have in our store, so that we are not competing with the retail Hardware dealer, nor taking his business from him. We feel sure that the average individual first comes in contact with the catalogue house because he finds in their catalogue goods that his merchant does not carry. We try to carry everything in our various lines and to have a full and complete assortment. This, together with our persistent drumming, keeps our customers from dealing with the catalogue house to a large extent. We find that where merchants are aggressive we do not interfere with them, for they are able to take care of the home trade, so that our territory is in that portion where merchants are not progressive.

Trade Would Slip Away if Not Canvassed.

From an Ohio Retail House: It is positively necessary for us to canvass the trade in our city and surrounding territory. If we did not, the trade would soon slip away from us. We have two men looking after factory business and one man taking care of the Building Hardware line.

Our men meet all kinds of competition. In some cases it is the "exclusive jobber," but more often—and we might say it worries us more than catalogue competition worries dealers in other sections of the country—it is the extra man sent out by the manufacturers to visit the factories

only. He does not call on the dealers at all. These same manufacturers have a regular man to see the Hardware trade. He, however, does not, or, does not want to, know anything about the extra man, so that he can deny the accusation if brought up.

Tried and Abandoned.

From a Merchant in Washington: We think it wrong for a retail dealer to send out a canvasser for local trade; it adds to the expense account, and is productive of more misunderstandings than any other method we are familiar with. Have tried and abandoned it, and hope that we will not (in self protection) be compelled to again take it up. It adds very little to the aggregate of goods sold. Possibly the first house to adopt it gets more than its share for a time, but the other fellow will then make an effort in that direction, and "there you are; where are you?"

Personal Solicitation Profitable.

From Ohio Retailers: Personal solicitation on the part of the retailer is a profitable way in which to enlarge one's business. From my past experience, in which I have carried out this idea, I am convinced that it will, and does, pay. Your contractor customers, if they be at all sociable, and I have found most of them to be so, like to have you interested in their work, and I have always made it a point to call on them every little while "on the job." It is not necessary to always talk "shop" to them, as

The Best Advertising

the mere fact that you are around keeps your business before them, and that is the best advertising I have found.

Regarding catalogue house competition, I say meet the price. You will not always have it to do, and from what I know of their prices we can afford to meet them. Some of us are too much afraid of losing a little money, but if we would consider that the catalogue house customer is easy to please (or he would not be that class of a customer) we would be obliged to meet but few of their prices before that same customer would become convinced that he could "do as well at home," and see the goods before paying for them.

Does Not Approve Canvassing.

From an Arkansas House: Our idea has been that the thing for a merchant to do is to keep as near as possible a complete stock of Hardware such as his territory requires, keeping it in such a manner that he can at all times display and demonstrate to his customers intelligently the usefulness of such articles, but we do not think that it is proper for a merchant to peddle his goods. In this connection, we think, it would be unnecessary to maintain and display a stock of goods at an extra expense if he intended working the trade direct with agents, for if he were going to peddle his wares he could as well keep a warehouse with a warehouse man to attend to orders and close up his store. We do not believe a policy of this kind a very wise one, for an up to date merchant, as most any intelligent customer, whether he be farmer, millman or belonging to any of the various professions, would much prefer to come into a well kept assortment of goods and make his selections, doing business with the merchant at his place of business, than to be constantly drummed by some one offering his wares for sale. We think there are many ways in which to advertise one's business and keep before the trade that would be far more satisfactory to a business man as well as to his customers.

Catalogue House Evil So far as catalogue house competition is concerned, I think we are on the way to some solution of this question. It cannot be solved, in my mind, by the manufacturer, the jobber or the retailer alone, but by all concerned working in harmony along some broad lines that will eventually classify the catalogue house as a retailer. Once classed as such, we will do the rest. We recognize the fact that this is a question that cannot be solved in a day or a year. There are many delicate points at issue, and we think that with the interest taken in this matter by manufacturers, jobbers and retailers a settlement of this question will be brought about on broad lines in a way that all will profit by, and I for one think that we have got to meet the issue in the matter of prices and any other way possible until such time as the matter is gotten better in hand by the co-operation of the manufacturer, jobber and retailer. A thorough organization and full understanding between manufacturers, jobbers and retailers, we believe, is the only channel that will go very far toward the elimination of the catalogue house evil.

Success Depends on Going After Business.

From an Ohio House: The success of the up to date retail Hardware merchant in this day and generation depends largely on the merchant going out and working up business personally. We believe that the catalogue house will remain just as long as the weak-kneed Hardware merchant will stand back and advertise them by condemning them for

the business which they are evidently taking from us at a higher price than the retail Hardware merchant is obtaining.

For instance: We beg to call your attention to Wood Mantels. Catalogue for 1903-1904: Mantel, R-684, their price \$25.25; the actual cost of this Mantel, complete, is \$15.50. Mantel R-686, their price, \$25.90; actual cost, \$18. Mantel R-685, their price, \$26.90; actual cost, \$15.25. When we take our pencil and figure up we find that the profit is much better than we are

Catalogue House Profits

getting on these same Mantels.

Not long ago a farmer came into our store to buy a pair of Pruning Shears. We asked him 25 cents for them. He kicked and said that he could buy them for 17 cents. The clerk laughed, and told him that a good profit was made at that price, as they cost \$1 per dozen, to which the farmer said that he didn't know that he had been made a fool of so much, and paid for them and went out. We carry their catalogue on our counter, and find no difficulty in meeting all of their prices at a fair profit to ourselves.

Another very weak point with the retail Hardware merchant is that we do not get the money for our goods. Many

of us are carrying from one-fourth to one-half of the amount of capital on our books. We conclude by offering a suggestion to go after business in person, and if the goods

cannot be collected for over the counter before they go out, have the best man in the store collect every dollar possible every 30 days. We have been practicing this, and are frank to say that the catalogue houses have bothered us but very little.

A Demoralizing Practice Where Prices Are Used as the Lever.

From a House in Rhode Island: We believe that local merchants in sending out salesmen to solicit business to more toward demoralizing business and do more injury to legitimate competition than any other one thing. Why? Because A sends a man out to get orders from B's customers, if possible; he finds B's customer satisfied with the treatment he is receiving, and like a loyal friend will not forsake B unless prices are considerably, or, at least, some, less. In order to get in with him he offers him

certain lines at cost, or nearly so as a starter. Perhaps B bites at the bait and gives him an order. When B's salesman calls he finds a

changed condition of things. His customer tells him what he has bought and at what price he got it. B's salesman says at once that "he proposes to protect his customers, and will do so at any cost. He will meet A's price and go one better." His mad is now up, and he goes to the whole list of A's customers, desirable and otherwise, and slaughters prices, and profits are lost sight of. This goes on indefinitely, and is far reaching in its results. After it is done there is no remedy. What are we going to do instead? That is a hard question. Stay in your store, treat your customers honestly, advertise extensively in local papers, reach them

by occasional letters, and, perhaps, call on them to see if everything is satisfactory, but not to quote prices at which to get business from your neighbor unless at a

fair profit. When business is dull there is more of this done than at any other time; we refer to price cutting. Then they chase out after B's, C's, D's and everybody's customers, and sell them at any price in order to get business; then the salesman comes in, looks "chesty," and brags because he got an order from the other fellow's customer. This has become a condition, and we suppose it has got to be met.

Pays to Canvass People Who Are Building or Repairing Houses.

From a House in Maine: Our experience has taught us that it does pay to give our personal attention to customers who are building or repairing houses; to have a well posted Hardwareman call on customers and talk the matter over, and incidentally make a suggestion that such a design would look well on their buildings, explain the different materials and their make up, and possibly quote price on same. We do not think it advisable to bore the customer by trying to make an immediate sale. We find that our customers usually appreciate the attention shown them, and in the end we usually secure the order.

Canvasser vs. Catalogue House Competition.

From a Michigan Merchant: We have in our employ a man whom we use almost exclusively for visiting outside city trade. This we have been doing for the past year, and we find it is very much to our advantage to do so. We know of several instances where carpenters and others had been buying Tools and Hardware from catalogue houses and we were enabled to convince them that they could buy better goods for the same money at home; also used the argument that it should be every man's interest to help build up his own city.

SECURING PROFIT FROM TRAVELING SALESMEN.

THE complaint is frequently heard that good traveling men are scarce, and one jobber is responsible for the statement that 80 per cent. of the traveling salesmen employed by wholesale houses do not actually make money for the houses whom they represent. This sweeping statement would doubtless provoke an energetic protest from the knights of the grip, and would probably be vigorously disputed by enterprising and influential houses. There is, however, no doubt that the percentage of nonprofitable salesmen is lamentably and unnecessarily high.

Many houses have given and are giving much time and thought to methods by which the efficiency and profit earning of their traveling men may be promoted, and in this connection we take pleasure in describing the system of selling goods through travelers which has been adopted by a comparatively small but very energetic and enterprising house in one of the larger cities of the country. This house was established a few years since, and advises us that its road selling method has proved an unqualified success.

The plan upon which a satisfactory profit showing business is carried on is as follows: Traveling salesmen are treated as merchandise. Merchandise is bought

to sell at a profit. Arrangements are made with salesmen to show a profit, not merely to sell goods. Each salesman pays his own

traveling and other expenses. The men are given the actual cost of goods at the factory without any of the expenses of doing business added. The basis of compensation is half of the net profits between the flat cost at the factory and the amount that the goods are sold for, 50 per cent. being retained by the company and 50 per cent. going to the salesman.

MANUFACTURERS SEND CHANGES

in the cost of goods direct to each salesman and a copy of the changes to the company. This eliminates the cost of stenographer, stationery, postage, &c., also the company's time and labor in supplying such information, while the salesmen are kept promptly posted on changes.

The men do not travel far, but cover territory within easy reach of the city in which the company is located, each salesman being near enough to permit him to reach his home every night. Each salesman has a telephone in his home or desk room in an office, so that he is in direct communication with his customers all the time.

By this arrangement the company practically places a stock of goods in the center of each salesman's territory, entailing no expense upon the company, while the salesman has nothing to do but sell goods. The traveling men are bound by no rules or instructions, are not hampered in their work in any particular, each being free to use his own discretion upon every occasion. Each one is himself a general, and at the same time virtually a partner in the company. Self interest, or selfishness, is the incentive to work and to get good profits on every sale. Through the salesmen's close association with their customers they have them as their friends. They may belong to local clubs, play a game of golf, visit a game of baseball or football, but they are always talking to their customers.

THE MEN CAN CARRY SIDE LINES

to help out sales, and in addition can sell anything their customers may want to order, whether carried in stock by the company or not. The wide diversity of the goods sold helps the salesmen to keep busy, and is a convenience to customers. In cases where outside goods are sold it is generally necessary to communicate with the company to get the cost. Sales of this kind come under the profit sharing basis. The cost of the goods in each invoice is figured, and each invoice stands by itself. The credit of each customer is passed upon by the company.

SETTLEMENT OF PROFITS EVERY THREE MONTHS

A check is sent each salesman every week for an agreed small amount, this being charged to his account

and deducted from his share of the profits. Settlement of profits is made by check once in three months. Profits are not credited, as a usual thing, until the goods are paid for by the merchant. When a salesman does not receive a check at the end of any quarter he knows he has made no money for himself or for the company during that period.

Most of the 12 men representing the company on the road have been in business for themselves, and this class of men has always been the most successful as salesmen. No good man, we are advised, has ever left the company. If a man does not prove to be a good salesman the knowledge obtained by him about the company's business is regarded as being of little service to him.

The usual idea in Hardware establishments is to pay a man as little as possible for his services, but this company tries to pay a man all it can, if he earns it. This each salesman knows. He also knows that the more money he makes for the company the more he is making for himself. When coming in competition with traveling men working under instructions from their houses this company's man has a decided advantage.

HE IS MASTER OF THE SITUATION,

and will naturally take the order if he can make a profit, or pass it if he cannot, and he can decide upon the spot. The company does not have to pay out a large sum for salaries every year, and has no traveling expenses to look after. It may be out the small amount of money advanced each week, but it does not take more than a month or two, if as long, to find out whether a salesman is worth keeping. As engagements are not made for any definite period, the company is not under the expense of paying a salesman's salary until his year is up. Poor salesmen do not have to be carried upon the profits made by the good ones.

Salesmen can take as long vacations as they want, and whenever they want, but they are not idle on the company's time, but at their own expense. No special prices are sent to the men to meet competition, avoiding giving of these low prices to all customers. When writing the company salesmen pay their own postage, and there is an entire absence of correspondence from the men explaining why they are not getting business.

THEY USE THEIR BEST ENDEAVORS TO FIX UP DISPUTES

regarding the return of goods, &c., as it is to their advantage to keep the goods sold. The men do not come to the company's store very often, as they would be losing their own time; nor is the whole traveling force lying around the establishment once or twice each year at the company's expense. Being within a short distance, orders telephoned or telegraphed to the company can be shipped the same day.

WHEN GOODS IN STOCK ADVANCE IN PRICE

the salesmen are given the advantage of the lower cost as long as these goods last. The cost is not advanced to them, but the selling price is advanced to customers. The low cost and higher selling price result, for the time being, in larger commissions for the salesmen. A traveling man working on a salary who is doing pretty well lacks inducement to exert himself still more. Not so with the man dependent upon his profits; the best he can do is not apt to satisfy him.

The system has developed an unexpected alertness on the part of the clerks in the store, who all aspire to become traveling men. They are on the outlook for

Effect on the Retail Store Force

opportunities to take orders for goods from their friends or acquaintances. Such orders are turned over to the company, which is, in many instances, the first intimation that the clerk is working along these lines. The commission paid on such sales is 1 per cent, the same amount that they receive on all store sales in addition to their salaries. The desire to be recognized as good salesmen brings the capabilities of the young men to the attention of the company, and occasionally results in the discovery of natural salesmen in its force of clerks.

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BRITISH LETTER.

Offices of *The Iron Age*, HASTINGS HOUSE,
NORFOLK ST., LONDON, W. C., October 8, 1904.

The Week's Hardware Trade.

IN the early days of the autumn quarter, it is quite usual for trade to be stimulated. This is the case this year, and in most departments there is a fair degree of activity. The Sporting Gun branch would seem to be an exception. Sportsmen, from all one can see, are just as busy slaughtering birds and other inoffensive creatures as ever before, but they are apparently relying on old Guns. In this department the London trade especially is in a very bad way. Opinions as to the possible displacement of the Belgian made barrel would seem to be a little premature. The new barrel is plain Steel, whereas the bulk of those imported is either Damascus or "twist." Fashion does not run quite so strongly in favor of these as was formerly the case, for various reasons, notably their liability to "grays."

The Christmas season, which the prophetic eye of the business man sees with such clearness, is calling up a demand for artistic goods in Brass, Copper, Silver and Electro Plate, but the retailers are short of money, and orders are given out cautiously. Stamped Hollow Ware goods are being sold in quantities, and there is real activity in the Iron Hurdle and Fencing departments, and Enamelled Signs for advertising. The falling off recently induced in Builders' Ironmongery continues. The Edge Tool trade is in a healthy condition.

From Sheffield I learn that the File trade is again rife with complaints of poor business being done, though it is the machine cut Files that suffer most. Perhaps this is one reason for the readiness of Sheffield manufacturers, in their desire to cheapen production, to try any novelty in the way of File cutting machinery—a readiness which unfortunately seems to involve an increase of the exports of machinery from Germany.

In the lighter trades it is satisfactory to note that, at least with the larger firms, the improvement in the Cutlery and Electro Plate trades is being well maintained. The fear is, however, that the present demand is only the result of long abstention from buying on the part of the retailers, and that as soon as their stocks are made up with a fair show of the season's novelties, things will be as bad as ever.

Sheffield Trade with the United States.

During the quarter just ended the total value of Sheffield trade with the United States was £108,725, as against £134,975 in the corresponding quarter of last year. The heaviest drop is in steel, but there have been decreases in Pearl Hafting Material, Sheep Shears and Measuring Tapes.

Prospects in South America.

Finance and industry in South America are so confused that it is difficult accurately to reach the real economic position. Any evidence bearing upon such facts is valuable. Francisco Seeber, ex-Mayor of Buenos Ayres and at present Intendant of the Government War Department, has just written a book upon the general situation in Argentina, which has been translated into English. This gentleman has taken an active part in the municipal life of Buenos Ayres, and the book is evidently written with the avowed intention of inducing investors to try their fortunes in Argentina.

One reason why Great Britain does such a large trade with Argentina is because of several British investments in that country. We do not trade cash against goods, but goods against goods, and if America is to make headway in South America this fundamental fact must be realized. Financial men tell me that the situation in Argentina is even yet by no means secure. The author of this book, apart from finance, makes some interesting suggestions. He desires to see a customs union formed among the chief South American States, especially between Argentina, Brazil and Chile, and hopes that such an agreement would pave the way for a closer connection. The Transandine Railway he considers will remain paralyzed for many years to come, owing to the jealousy of the Chilean Government, which is afraid that the

line will drain off its population into the more fertile State, although in the end Mr. Seeber believes that better counsels will prevail and the importance of the line for trade purposes will be recognized.

The situation in Brazil is not so rosy. A consular report says:

A truer index to the economic situation is to be found in the large number of recent commercial failures, and in the unfortunate predicament of operatives and laborers in the agricultural districts, where we learn that planters are in arrears with their employees for as much as two and three years' wages.

A change for the better is, however, to be found in one particular, namely, the greater stability of the exchange, which has now been for many months in the neighborhood of 25 cents to the milreis. It is thought probable that the same stability may continue at least so long as the resources from the foreign loans are available, although it is also feared that disturbing influences will be found in the increase in Government expenditure, and in the simultaneous increase in value of imports and decrease in value of exports.

Influences operating against trade development, independently of the purely economic difficulties arising chiefly from the poor results of the last two coffee crops, are to be found in the heavy taxation, it being calculated that Federal and State (exclusive of municipal) taxes for the present year (1904) will amount to 524,000,000 milreis, or 70 per cent. of the total value of exports.

Another most discouraging element is to be found in the commercial laws, which make the recovery of debt uncertain, thus facilitating inequitable and secret settlements between unscrupulous traders, to the detriment of less favored creditors.

THE United States Consul at Marseilles, France, gives a timely hint to American manufacturers that the printed matter which they are sending in great quantities to Abyssinia is seldom received by the addressees, who decline to pay the heavy penalty postage invariably due, because the United States has no postal convention with Abyssinia, where mail is carried by pony express, the rates consequently being very high. Letter mail goes through promptly enough without penalty, but heavy catalogues are charged domestic rates in addition to the amount prepaid in the United States. The Consul goes still farther and points out that the Abyssinians want samples, not catalogues and price-lists. He criticises what he calls the tentative methods of American firms to secure trade in this country, basing his position upon a letter from one of his correspondents in Abyssinia. What is needed, he points out, is an American firm established in that country, strong enough and enterprising enough to take advantage of the opportunities which will come only to those on the ground. Other countries have been quick to avail themselves of this advantage, and consequently are getting the business where the United States could have a large share of it because of the excellence of American goods. Correspondence is securing some business, it is true, but nothing compared to the better method of getting into personal touch with the trade and its demands.

NEW FREEDOM WIRE CLOTH COMPANY.

THE NEW FREEDOM WIRE CLOTH COMPANY,

New Freedom, Pa., whose factory was destroyed by fire some time ago, has rebuilt its plant and is now re-entering the market with a line of Screen Wire Cloth, to the quality of which it directs special attention. The company is installing improved machinery designed by A. S. Norrish, mechanical engineer of Norrish, Burnham & Co., Glen Rock, Pa., who is the inventor of a number of improvements in wire weaving machinery and president of the company. As a result of the completeness of the new plant and the character of the machinery the company expects to make a prominent position for itself, both in the quantity and quality of its product.

F. J. MATTISON, 314 West Fifty-sixth street, New York, who is the Eastern agent of the Felker & Mieth Mfg. Company, Dayton, Ohio, manufacturer of Novelties, recently secured an order for 2000 Conductors' Punches, which is one of the company's various products.

AMERICAN BUYING COMPANY.

REFERENCE was made in *The Iron Age* some time since to the organization in Chicago of the American Buying Company, in charge of George A. Bushnell, who had been for years manager of the George Tritch Hardware Company, Denver, Col., assisted by John R. Black. Mr. Bushnell's plan is to act as buyer for a number of the larger retail Hardware dealers, securing in this way a sufficient tonnage to command the lowest prices direct from the manufacturers, thus saving to the dealer the jobber's profit. He makes a contract with the retail merchant for a year at a stated fee for the year's service, the price being in proportion to the annual sales of the dealer, the arrangement being that the dealer gets the benefit of whatever concession the buying company can secure from the mills. Mr. Bushnell also expects to save money for his customers by having orders shipped in car lots to central points, whence they are distributed in less than car lots to dealers whose orders are included in the shipment. For such dealers as are not willing to transfer their buying to him in a large way, Mr. Bushnell offers another plan, known as the "Hardware Buyers' Association," in which dealers can become members at a nominal annual fee, the association charging a commission for purchases made, the membership entitling the member to participation in the profits of the association. Mr. Bushnell states that he is making headway and is already actively engaged in buying for a number of Western dealers.

AMONG THE HARDWARE TRADE.

Lyman Fraser has bought J. S. Kirkpatrick's Hardware business in Waterman, Ill., and continues at the old stand.

The Foss-Armstrong Hardware Company, Hudson, Wis., is intending to increase its capital stock to \$100,000 by January 1. The company refers to its first year in the jobbing field as having been very satisfactory, and intends covering more territory and enlarging its working force for 1905.

Sexton, Farley & Co., have succeeded McElrath, Sexton & Co. in the Hardware Store, Tinware, Agricultural Implement, Buggy and grocery business at Murray, Ky.

Armstrong & Sterns, Iowa Falls, Iowa, have removed their Hardware and Stove business to a new location.

A. W. Wigton & Co. are successors to Wigton & Grant in the Hardware, Stove and Implement business in Clarksville, Texas.

A. R. Bondurant, Galt, Mo., has disposed of his business to Farmers' Hardware Company, which will be incorporated. Mr. Bondurant is the principal stockholder in the new company and will manage the business. A number of new lines will be taken up.

The Ocheyedan Hardware Company has succeeded Diehl & Rathbone at Ocheyedan, Iowa.

Terwilliger Bros. have sold their Hardware and Stove business at Wayne, Neb., to J. E. Morsteller, who continues at the old stand.

J. H. Dunklin & Co., Greenville, Ala., will shortly remove to a new location, with improved facilities for carrying on and developing their wholesale and retail business in Hardware, Stoves, Implements, Paints, Sporting Goods, &c.

Kingseed Bros., Hardware and Paints, Fostoria, Ohio, are building an addition of 20 feet to their two storerooms. They are also erecting a one-story warehouse. It has also been determined to throw the two storerooms into one, which, with remodeling and rearrangement, will provide a fine store. These changes are justified by the

growth in the business of the firm, which at the present time overtakes the establishment.

Peery & Carroll have succeeded Hart & Peery in the Hardware and Farm Implement business at Randall, Kan.

Fred. Lathrop has disposed of his Hardware and Harness business in Armstrong, Iowa, to Debaets & Son.

Pioneer Hardware Company, with a capital of \$15,000, paid up \$7500, has succeeded Thomson Hardware Company in Addington, I. T.

Crary Bros. & Co., Madrid, Iowa, have disposed of their Hardware business to Albert Berglund, formerly in their employ, and Lewis E. Mason, who have organized under the firm style of Berglund & Mason.

Dorgan-Young Hardware Company, Mobile, Ala., has been organized as successor to Dorgan Hardware Company, retail Hardware, Stoves, Agricultural Implements, Paints, Sporting Goods, Crockery, Glassware, &c.

Luther McDowell has purchased Jno. Cost's Farm Implement and Machinery business at Young America, Ind.

MISCELLANEOUS NOTES.

Disston No 10 Screw Driver.

Henry Disston & Sons, Philadelphia, Pa., are offering a new screw driver, with blade of special grade crucible steel, carefully hardened and tempered, bright finish. The handle is of polished rubberoid, having an easy and comfortable grip. The tang is driven into the handle and a rivet extends through the ferrule, handle and tang, headed on both ends to prevent the blade turning in the socket. The driver is of the same pattern as the Disston Telegraph driver, except in finish of handle, and presents a handsome and attractive appearance. It is made in nine sizes, from 2 to 12 inches.

Ideal Nut Cracker.

The Weyburn Company, Rockford, Ill., is placing on the market the Ideal nut cracker, a device consisting of a cast body and a malleable lever, the latter being pivoted in such a way as to permit the introduction of a nut of any size. The construction is such that the operator's control of the lever makes the cracking of the nut easy and without crushing the kernel.

The National Dump Wagon.

The dumping mechanism of the National dump wagon, shown herewith, consists of two doors, which form the floor of the wagon, the doors being fastened to the box



Fig. 1.—National Dump Wagon.

by means of steel loops hung from the vertical slide guides on the outside of the box. When the driver wishes to dump his load he disengages the ratchets at both his right and left hand, which permits the bottom doors to fall to an angle of about 45 degrees, Fig. 1. At this point the short length of the chains does not permit the lower

edges of the doors to fall lower, and consequently the pressure due to the falling materials forces the outer or free sides up on the outside of the box, Fig. 2. This leaves the bottom boards high above the ground and avoids the stalling of the wagon due to the presence of obstructions which would interfere with doors that hung downward their full width. The maker claims that the doors clear the ground by about 8 inches more than is done on any wagons using chain hinges or rigid hinges. After the dumping ceases and the dump is cleared the

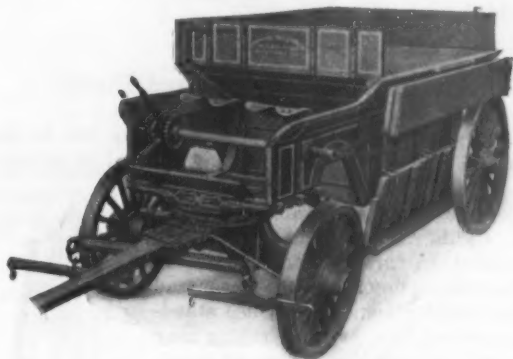


Fig. 2.—National Dump Wagon, with Bottom Doors Forced Up on the Outside as in Dumping.

doors automatically resume the half closed position shown in Fig. 1. The doors are then raised and closed, this operation being accomplished by a pumping motion of the ratchets, two or three strokes doing the work. As the ratchets automatically hold the chains in position, no further lock is necessary to keep the wagon bottom in a closed position. The wagon body itself is carried on the axle, no brackets or bolsters being used, the top of the bed being at the same time several inches lower, it is stated, than other forms of wagons of the same capacity. This wagon is made in a number of sizes and designs to suit contractors' requirements. It is built by the National Drill & Mfg. Company, Pullman Building, Chicago, Ill.

Heat Closing Fire Doors and Shutters.

Victor Mfg. Company, Newburyport, Mass., is offering new devices for fire doors and outside sliding shutters, as shown in the accompanying cuts. The Never

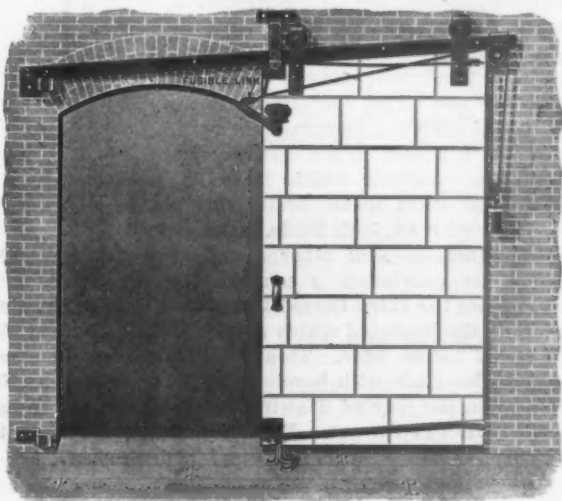


Fig. 1.—Never Fail Device.

Fail device, Fig. 1, is similar to the ordinary incline track pattern, except that the weight is so arranged that when it is released by the fusing of the link it not only allows the door to close by its own weight, but aids it by pulling the door. This makes the door doubly sure

to close. The automatic latches for closing sliding fire doors and shutters, which are shown in connection with doors, Figs. 2 and 3, are referred to as entirely new.

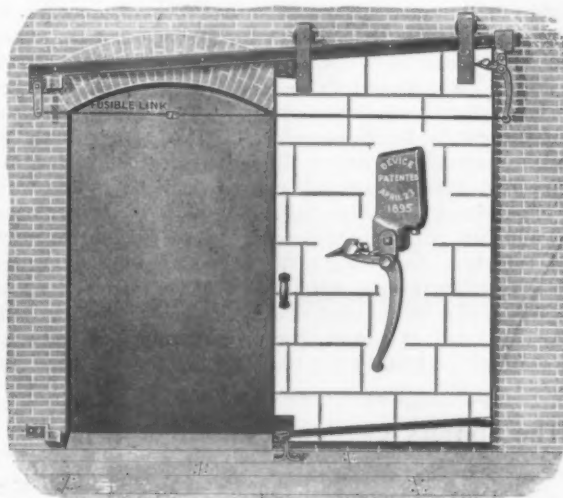


Fig. 2.—Victor Automatic Latch C.

The latches are made light and strong, of malleable iron, and are controlled by a spring on which there is a slight continual tension when doors are open. This



Fig. 3.—Victor Automatic Latch D.

tension is released by the fusing of the link, causing the doors to close by their own weight in a similar manner to the ordinary weight balanced door hung on incline

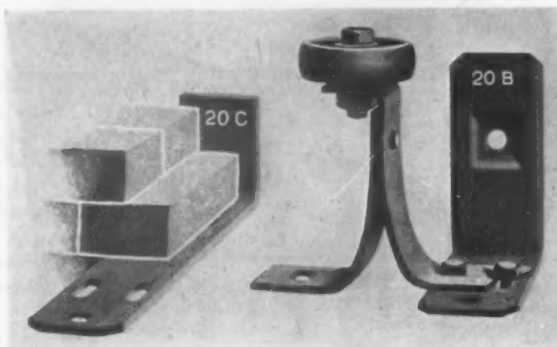


Fig. 4.—Adjustable Victor Improved Stay Roll.

track. The advantages of this device are simplicity, cheapness and absence of weight. Weights on sliding outside shutters, it is remarked, have always been a menace, and this device does away with this objectionable feature. This style shutter, it is also pointed out, is more

reliable than swinging shutters. The device cannot be used where doors are to remain partly open, and is only suitable where doors are left wide open or closed. While the C pattern is more commonly used, the D pattern is preferred by some insurance authorities on account of having the fusible link always in the center of the opening. The stay roll to guide doors at the bottom, shown in Fig. 4, is designed to meet the requirements of the National Board of Underwriters. The board requires that the roll be built into a wall. The part to build in wall is indicated by 20C, while 20B indicates another arrangement whereby the roll can be fastened to the wall by expansion or machine bolt. The slots in these pieces, 20C and 20B, allow the roll room for adjustment to meet any thickness door. To make this stay roll doubly secure, it is arranged to attach to the floor as well as to the wall. If a fire occurs and floor support is destroyed, it is explained, it would then have ample anchorage in the wall as specified by the National Board.

The Simplex Combined Plumb and Level.

Webster & Perks Tool Company of Springfield, Ohio, manufacturer of the Simplex wall paper trimmer, is just putting on the market another ingenious little tool



Fig. 1.—The Simplex Combined Plumb and Level.

for the use of paperhangers, the plumb and level shown in the accompanying illustrations. The tool is designed for use on the regular trimmer straight edge, Fig. 1 showing its application as a plumb, and Fig. 2 as a level. The tool engages with the straight edge and may

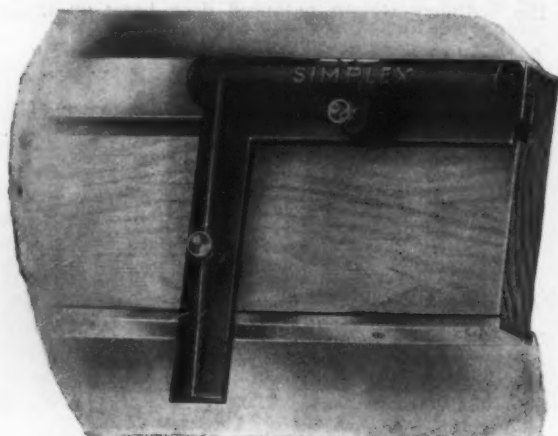


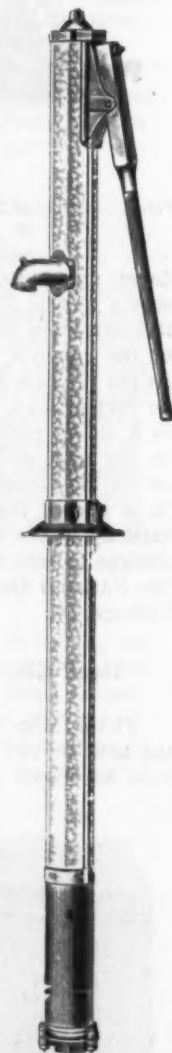
Fig. 2.—Combined Plumb and Level as a Level.

be placed at any desired point on the same and securely held there by half a turn of the small knurled screw, thus rendering it impossible for the tool to drop, slide or shake off, and entirely obviating the necessity of holding it on or against the straight edge, leaving the hands free for

marking. The tool is made of bronze, to eliminate the possibility of damage or breakage if accidentally dropped. It is finished in oxidized copper and measures 3 x 3¼ inches, weighing 3 ounces. The use of the tool obviates the necessity of climbing up and down ladders to drop a plumb, entirely eliminates driving of nails and consequent cracking of plaster, and in securing a level an assistant is not required to snap the line. It can be used on or against any style or shape of casing, and is especially recommended for those decorators who cater to high class work and for use in hanging crown effects, two-third work, plate rail, &c.

The Hawkeye Galvanized Pump.

The pump shown in the accompanying cut is made of No. 20 galvanized sheet steel, octagonal in shape, to give it strength and stiffness. It is furnished with all malleable iron castings. Cylinders are seamless brass or galvanized, in three sizes, each size in six lengths. The cap on the lower end of the cylinder is tapped to use standard merchant pipe, or wood tubing may be used. Among the points of excellence claimed for the pump are the following: That the octagonal shape allows room for expansion to prevent bursting if frozen; that it will not check and split from the effects of sun and rain; that it is sanitary, giving water free from taint, scales, worms, germs or bacteria, and that it works free and easily, throwing a large volume of water as it has an 8-inch stroke. If the plunger requires a new leather the cap at the top is removed, without drawing the pump from the well, when it can readily be taken out. To replace the check valve it is only necessary to loosen three ¾-inch bolts in the lower cylinder casting. The pump is offered by the Hawkeye Pump Company, Washington, Iowa.



The Hawkeye Galvanized Pump.

Chisels and Drawing Knives.

In the new tool catalogue recently issued by the James Swan Company, Seymour, Conn., for which Russell & Erwin Mfg. Company, New York, is agent, are shown a large number of articles not heretofore made by it. Among these are the Extra carpenters' slicks No. 7012½, with oval back for light work, with 9-inch blades, in 2½, 3, 3½ and 4 inch sizes. Another article is a Diamond Back extra socket firmer chisel, No. 7016, with 6½-inch blade, in sizes ½ to 2 inches. Still other forms of chisels not previously a part of its product are the extra tanged firmer butt chisels, handled, No. 7119, the blades of which are 2½ inches long and 1½, 1¾ and 2 inches wide. This chisel, the same in every way, is also made with beveled edges, and known as No. 7115½. In the way of drawing knives the company has added to its line the extra Bradley patter, No. 7485, with extra heavy blades, in 8, 9, 10 and 12 inch sizes.

New Idea Broadcast Hand Seed Sower.

J. A. Everitt, Indianapolis, Ind., is offering the broadcast hand seed sower shown herewith. There are two working parts, the drive wheel working in a worm gear. The lower end of the fan shaft is fitted into a ball bearing to reduce friction, and to make it run as easily when loaded as when empty. The device will sow wheat, rye,

oats, rice, flax, millet, turnip and clover seed, grass seed, including light grasses—in fact, it is stated all kinds of seed—broadcast; also plaster, fertilizer, salt, ashes, &c.

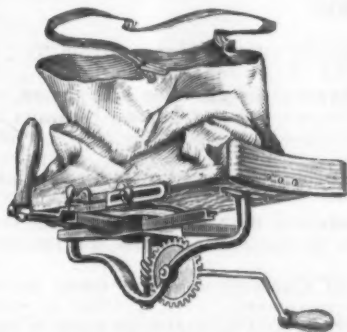


Fig. 1.—New Idea Broadcast Hand Seed Sower.

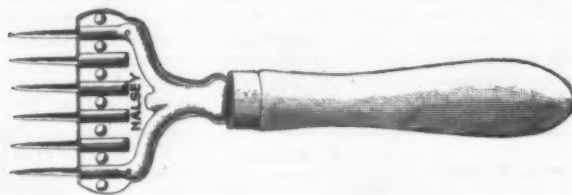
It is explained that owing to the construction of the hopper and the attachment of the sack the device sows out very clean. Among the special features the following are



Fig. 2.—New Idea Seed Sower in Use.

mentioned: That the sower is almost noiseless in operation; that the frame is nickel plated; that the working parts are few, strongly made and thoroughly tested, and

with a fine file when necessary. As now made, but not so shown in the cut, the metallic portion is reinforced by placing a piece of tempered steel between the halves, above the top of the pick, to make the article much more stiff and rigid, while adding but little weight. A shoulder against which the handle is driven is to prevent the ferrule coming off. The metallic portion of the article is finished in "flat black," a durable imitation of that used on various high-class hardware articles. The chipper is referred to as very strong in construction and light in weight, thus reducing freight charges. It is less tiresome to operate than a heavy tool, it is remarked, as



The Halsey Ice Pick and Chipper.

weight is not necessary with this chipper to get results. The sharp points easily enter the ice, and once entered the ice is broken. The manufacturer states that with the chipper large sized punch bowls can be dished out of ice in a few minutes, and that small receptacles can readily be formed for serving fruits, ices, &c. To demonstrate the utility of the tool a block of ice 11 x 22 x 54 inches was recently stood on end and the center was chipped out, leaving an arched top and thin, straight margins down the sides, and producing 227 pounds of small particles of chipped ice, with but slight variation in size, in 15 minutes. The chippers are put up in packages suitable for stocking on shelves, half dozen in a package, each chipper in an individual carton.

Single Twist Auger and Tapping Bits and Extension Holder.

The James Swan Company, Seymour, Conn., for which Russell & Erwin Mfg. Company, New Britain, Conn., and



Fig. 1.—Swan's Single Twist Auger Bit.



Fig. 2.—Cyclone Tapping Bit.



Fig. 3.—Extension Bit Holder.

that the adjustment for quantity is accurately regulated. The sowers are packed one in a box.

The Halsey Ice Pick and Chipper.

The accompanying cut represents an ice pick and chipper put on the market by C. W. Halsey, Evansville, Ind. It consists of two parts formed from heavy sheet steel, each part making a complete half of the sheet metal portion, and identical in formation, and shaped so as to give the greatest amount of strength. The halves are placed with their inner faces together, with picks between in the semicircle grooves, clamped securely by means of rivets. The picks are made of high grade steel, accurately tempered and, it is stated, will remain sharp indefinitely unless jammed against some hard metal or stone substance. The picks may be sharpened

43-47 Chambers street, New York, is sole agent, has brought out a number of new boring tools, of which those here illustrated are examples. Fig. 1 represents Swan's single twist auger bit No. 20, made in 26 sizes, from 3-16 to 3 2-16 inches, inclusive. This pattern has been made to supply a growing demand for a high grade tool and is superseding the old style auger bit. Fig. 2 illustrates the Cyclone tapping bit No. 60. This bit is designed for tapping maple sugar trees, is 6 1/4 inches long over all and is made in 6, 7 and 8-16 inch sizes, packed 12 in a box. Fig. 3 shows the Swan extension bit holder No. 6120. This device is intended as a positive holder for a bit shank, is small in diameter and will not release while boring. The extension rod will follow in a 1/4-inch space. They are made in 12, 18 and 24 inch lengths regularly, but can be made longer when so ordered at slight advance in cost.

Stowell's Grindstone Fixtures, Extra Heavy.....	50¢10¢10¢
Stowell's Grindstone Fixtures Light.....	60¢10¢
Eddies Saucepans	

Forks—

Base Discounts Aug. 1, 1899, list:	
Hay, 2 tine.....	50¢10¢5¢
Boys' & Fish, 2 tine.....	50¢10¢5¢
Hay & Boys', 3 tine.....	60¢5¢
Hay & Boys', 4 tine.....	60¢5¢
Champion Hay.....	60¢5¢
Hay & Header, long 3 tine.....	60¢5¢
Header, 4 tine.....	60¢5¢
Barley, 4 & 5 tine, Steel.....	60¢5¢
Manure, 4 tine.....	60¢5¢
Manure, 5 and 6 tine.....	60¢5¢
Spading.....	70¢12½¢
Potato Digger, 6 tine.....	60¢11¢
Sugar Beet.....	40¢10¢
Coke & Coal.....	40¢10¢
Heavy Mill & Street.....	60¢
Iowa Dig-Easy Potato.....	60¢10¢
Victor, Hay.....	60¢15¢2½¢
Victor, Manure.....	60¢15¢
Victor, Header.....	60¢15¢
Champion, Hay.....	60¢15¢
Champion, Header.....	60¢15¢
Champion, Manure.....	60¢15¢2½¢
Columbia, Hay.....	60¢15¢
Columbia, Manure.....	60¢15¢
Columbia, Spading.....	70¢12½¢
Hawkeye Wood Barley.....	40¢
W. & C. Potato Digger.....	60¢10¢
Ame Hay.....	60¢10¢
Ame Manure, 4 tine.....	60¢10¢5¢
Dakota Header.....	60¢10¢
Jackson Steel Barley.....	60¢10¢
Kansas Header.....	60¢
W. & C. Favorite Wood Barley.....	40¢
Plated—See Spoons.	

Frames—Saw—

White, Straight Bar, per doz. 75¢	75¢
Red, Straight Bar, per doz. \$1.00	\$1.00
Red, Double Brace, per doz. \$1.40	\$1.40

Freezers Ice Cream—

Each.....	\$1.85 \$1.60 \$1.90 \$2.20 \$2.30
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Fruit and Jelly Presses—

See Presses, Fruit and Jelly.	
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Fry Pans—See Fry Pans.

Fuse—	
Hemp.....	\$2.75
Cotton.....	\$3.80
Waterproof Single Taped.....	\$3.65
Waterproof Double Taped.....	\$4.40
Waterproof Triple Taped.....	\$5.15

Gates Molasses and Oil—

Stebbins' Pattern.....	80¢10¢80¢10¢5¢
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Gauges—

Marking, Mortise, etc.....	50¢10¢5¢50¢10¢10¢5¢
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Chapin-Stephens Co.: Marking, Mortise, etc. 50¢10¢50¢10¢10¢	
Scholl's Patent.....	50¢10¢50¢10¢10¢
Door Hangers.....	50¢10¢50¢10¢
Stanley R. & L. Co.'s Best & Best.....	40¢50¢10¢10¢
Gauge.....	25¢
Wire, Brown & Sharpe's.....	25¢
Wire, Morse's.....	25¢
Wire P. S. & W. Co.....	30¢10¢

Climets—Single Cut—

Nail, Metal, Assorted, gro. \$1.40	\$1.40
Spike, Metal, Assorted, gro. \$2.80	\$2.80
Nail, Wood Handled, Assorted, gro. \$1.75	\$1.75
Spike, Wood Handled, Assorted, gro. \$4.35	\$4.35

Class, American Window

See Trade Report	
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Glasses, Level—

Chapin-Stephens Co.	60¢10¢10¢10¢
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Glue—Liquid Fish—

Bottles or Cans, with Brush.....	25¢50¢
Cans (½ pts., pts., qts., ½ gal., gal.).....	25¢45¢
International Glue Co. (Martin's).....	40¢10¢

Grease Axle—

Common Grade.....	gro. \$4.50
Dixon's Everlasting.....	10¢10¢10¢10¢
Dixon's Everlasting, in bxs. ½ doz. 1 lb.	\$1.20; 2 lb. \$2.00

Grips, Nipple—

Perfect Nipple Grips.....	40¢10¢25¢
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Grids, Soapstone—

Pike Mfg. Co.	\$3.10 \$3.30 \$4.10
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Grindstones—

Bicycle Emery Grinder.....	\$6.50
Bicycle Grindstones, each.....	\$2.50 \$3.00

Improved Family Grindstones—

per inch, per doz.....	\$2.00 \$3.50
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Pike Mfg. Co. Knife and Tool

Grinder, each.....	\$9.00
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Velox Ball Bearing, mounted, Angle

Iron Frames.....	each, \$3.25
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Halters and Ties—

Covert Mfg. Co.: Web.....	40¢2½¢
Jute Rope.....	40¢5¢5¢
Sisal Rope.....	50¢
Cotton Rope.....	45¢5¢
Hemp Rope.....	45¢5¢

Covert's Saddlery Works:

Web and Leather Halters.....	70¢
Jute and Manila Rope Halters.....	70¢
Sisal Rope Halters.....	70¢
Jute, Manila and Cotton Rope Ties.....	70¢
Sisal Rope Ties.....	60¢10¢

Hammers—

Handled Hammers—	
Heller's Machinists'.....	40¢10¢40¢10¢10¢
Heller's Farmers'.....	40¢10¢40¢10¢10¢
Magnetic Tack, Nos. 1, 2, 3, \$1.25, \$1.50, \$1.75.....	40¢10¢10¢10¢
Peck, Stow & Wilcox.....	40¢10¢5¢
Fayette R. Plumb.....	40¢10¢5¢
Plumb, A. E. Nall.....	40¢10¢5¢
Engineers' & B. S. Hand.....	50¢7½¢50¢10¢7½¢5¢
Machinists' Hammer.....	50¢50¢50¢10¢5¢
Riveting and Tappers'.....	40¢10¢40¢10¢10¢
Sargent's C. S. New List.....	40¢

Heavy Hammers and Sledges—

Under 3 lb., per lb. 50¢, 50¢10¢10¢85¢	
5 to 10 lb., per lb. 40¢, 50¢10¢10¢85¢	
Over 10 lb., per lb. 30¢, 85¢10¢10¢85¢	
Wilkinson's Smiths'.....	9½¢10¢10¢

Handles—**Agricultural Tool Handles—**

Axe, Pick, etc.....	60¢
Hoe, Rake, etc.....	50¢50¢5¢
Fork, Shovel, Spade, etc.: Long Handles.....	45¢50¢5¢
D Handles.....	40¢

Cross-Cut Saw Handles—

Atkins'.....	40¢5¢
Champion.....	45¢45¢10¢
Disston.....	50¢

Mechanics' Tool Handles—

Auger, assorted.....	gro. \$2.50 \$2.85
Bradawl.....	gro. \$1.65 \$1.85

Chisel Handles:

Apple Tanged Firmer, gro. ass'd.....	\$3.40 \$2.65
Hickory Tanged Firmer, gro. ass'd.....	\$2.15 \$2.40

Apple Socket Firmer, gro. ass'd.....	\$1.75 \$1.95
Hickory Socket Firmer, gro. ass'd.....	\$1.45 \$1.60
Hickory Socket Framing, gro. ass'd.....	\$1.60 \$1.75

File, assorted.....	gro. \$1.30 \$1.40
Hammer, Hatchet, Axe, etc.....	60¢10¢10¢

Hand Saw, Varnished, doz. 80¢5¢

Not Varnished.....	65¢75¢
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Plane Handles:

Jack doz. 30¢; Jack Bored.....	75¢
Fore, doz. 15¢; Fore, Bored.....	75¢

Chapin-Stephens Co.:

Carving Tool.....	40¢40¢10¢
Chisel.....	50¢50¢10¢
File and Awl.....	65¢65¢10¢
Saw and Plane.....	40¢40¢10¢
Securo Driver.....	40¢40¢10¢
Millers Falls Adj. and Hatchet Auger	
Handles.....	15¢10¢
Nicholson Simplicity File Handle,	
½ gro.....	\$0.35 \$1.50

Hangers—

NOTE.—Barn Door Hangers are generally quoted per pair, without track, and Parlor Door Hangers per double set with track, etc.	
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Barn Door, New Pattern, Round

Groove, Regular:	
Inch.....	5 4 5 6 8
Single Doz. \$0.90 1.35 1.60 1.95 2.50	

Barn Door, New England Pattern,

Check Back, Regular:	
Inch.....	5 4 5 6
Single Doz.	\$1.30 1.85 2.50 3.00

Althoff Mfg. Co.:

Reliable No. 1.....	per doz. \$8.00
Reliable No. 2.....	per doz. \$9.00

Chicago Spring Butt Co.:

Friction.....	25¢
Oscillating.....	25¢
Big Twin.....	25¢

Chisholm & Moore Mfg. Co.:

Elevator.....	50¢
Railroad.....	50¢
Cronk & Carrier Mfg. Co.:	
Loose Axle.....	60¢10¢5¢
Roller Bearing.....	70¢5¢

Graham Mfg. Co.:

Solid Axle, No. 10, \$12.00.....	70¢
Roller Bearing, No. 11, \$15.00.....	70¢
Roller Bearing, Ex. H., No. 21, \$18.00.....	70¢

Hinged Hangers \$16.90.....

Lane Bros. Co.:	
Parlor, Ball Bearing.....	\$4.00
Parlor, Standard.....	\$3.15
Parlor, No. 105.....	\$2.85
Parlor, New Model.....	\$3.40
Parlor New Champion.....	\$2.35
Parlor Door, Standard.....	60¢10¢2½¢
Hinged.....	net \$6.40
Covered.....	60¢10¢
Special.....	70¢35¢

Lawrence Bros.:

Advance.....	60¢10¢
Cleveland.....	70¢5¢
Clopper, No. 70.....	40¢
Crown.....	60¢10¢
Easy Parlor Door, DBL Sets, \$3.50; Single Sets, \$1.25.....	60¢5¢

Hummer.....

New York.....	70¢5¢
Peerless.....	60¢10¢
Sterling.....	60¢10¢

McKinney Mfg. Co.:

No. 1, Special, \$15.....	60¢10¢
No. 2, Standard, \$15.....	60¢10¢
Hinged Hangers, \$16.....	60¢
McKer's Stayer Hangers.....	60¢

Richards Mfg. Co.:

Pioneer Wood Track No. 9.....	\$2.15
Ball R'r'g Steel Track No. 10.....	\$2.40
Roller R'r'g Steel Track No. 12.....	\$2.30
Ball R'r'g Steel Track No. 13.....	\$2.40
Roller R'r'g Steel Track No. 14.....	\$2.30

Hero Adjustable Track No. 19.....

Adjustable Track Tandem Trol- ley Track No. 16.....	50¢
Seal, Steel Track No. 8.....	\$1.40
Auto Adjustable Track No. 22.....	\$2.40 \$1.50
Trolley R. D. No. 17.....	\$2.35
Trolley F. D. No. 120.....	\$2.35
Trolley F. D. No. 121.....	\$2.45
Trolley F. D. No. 151.....	\$2.60
Safety Underwriters F. D. No. 101.....	\$2.25
Tan'em No. 44.....	70¢5¢
Trolley F. D. No. 151.....	\$3.00
Palace, Adjustable Track.....	60¢10¢
Royal, Adjustable Track No. 122.....	40¢10¢

Ives' Wood Track No. 1.....

Trolley R. D. No. 29.....	\$2.15
Trolley R. D. No. 31.....	\$1.45
Trolley R. D. No. 37.....	\$1.35
Trolley R. D. No. 38.....	\$1.65
Roller Bearings Nos. 30, 40, 41, 43.....	70¢5¢
Anti-friction No. 43.....	60¢10¢
Hinged Tandem No. 43.....	60¢
Folding Door B. B. Swivel N. 135.....	30¢

Safety Door Hanger Co.:

Storm King Safety.....	60¢
U. S. Standard Hinge.....	60¢

Stowell Mfg. and Foundry Co.:

Ames Parlor Ball Bearing.....	10¢
Ajax Hinge Door.....	60¢
Apex Parlor Door.....	50¢10¢5¢

Atlas.....

Baggage Car Door.....	60¢
Climax Anti-Friction.....	50¢10¢
Elevator.....	40¢
Express.....	50¢
Frederick Roof.....	60¢
Interstate.....	40¢10¢
Lundy Parlor Door.....	50¢10¢
Magic.....	60¢
Matchless.....	60¢10¢
Nansen.....	70¢5¢
Parlor Door.....	50¢10¢
Railroad.....	50¢10¢
Rex Parlor Door.....	60¢
Street Car Door.....	50¢
Steel, Nos. 300, 404, 500.....	50¢10¢
Underwriters' Fire Door.....	40¢
Wild West Warehouse Door.....	50¢
Zenith Parlor Wood Track.....	50¢10¢

A. L. Sweet Iron Works:

Chick Back.....	70¢
Climax Anti-Friction.....	50¢10¢
Eagle.....	70¢
Hilo Hinge.....	60¢
New Perfection.....	60¢
Pilot.....	60¢
Pilot Hinge.....	60¢
Rider Wooster.....	60¢
Western Pattern.....	70¢

Taylor & Boggs' Fy Co.'s Kidder's

Roller Bearing.....	50¢15¢10¢5¢
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Wilcox Mfg. Co.:

Bike Roller Bearing.....	60¢10¢
C. J. Roller Bearing.....	60¢10¢
Cycle Ball Bearing.....	50¢
Dwarf Ball Bearing.....	40¢
Ives, Wood Track.....	60¢10¢
L. T. Roller Bearing.....	60¢10¢
New Era Roller Bearing.....	50¢10¢
O. K. Roller Bearing.....	60¢10¢5¢
Prindle, Wood Track.....	60¢
Richards' Wood Track.....	60¢
Richards' Steel Track.....	50¢10¢
Special Roller Bearing.....	60¢10¢
Tandem Nos. 1 and 2.....	40¢
Underwriters' Roller Bearing.....	40¢
Velvet.....	50¢
Wilcox Auditorium Ball Bearing.....	20¢
Wilcox Barn Trolley No. 133.....	40¢
Wilcox Elev. Door, Nos. 112 and 123.....	40¢
Wilcox Elev. Door, No. 102.....	40¢
Wilcox Fire Trolley, Roller	
Bearing.....	40¢
Wilcox Le Roy Noiseless Ball	
Bearing.....	40¢
Wilcox New Century.....	50¢10¢10¢
Wilcox O. K. Steel Track.....	50¢
Wilcox O. K. Trolley.....	50¢
Wilcox Trolley Ball Bearing.....	40¢
Wilcox Wideman Narrow Gauge,	
Ball Bearing.....	40¢

For Track, see Rail**Hangers, Garment—**

Fullman Trouser, No. 1, ½ gro.....	\$9.00
Fullman Trouser, No. 4, ½ gro.....	\$4.00
Victor Folding.....	\$8.00
Western, W. G. Co.....	70¢10¢

Myers' Patent Gate Hangers, ½ doz. set \$4.50**Hooks—**

McKinney's Perfect Hook, ½ doz.....	50¢
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Hatchets—

Regular list, first quality.....	40¢
Second quality \$1.00 per doz. less than first quality.....	

Heaters Carriage—

Clark, No. 5, \$1.75; No. 5B, \$2.00; No. 5, 225; No. 3D, \$2.75; No. 7D, \$3.00; No. 7, 3E, \$3.25; No. 1, \$3.50.....	15¢
Clark Coal, No. 7, ½ doz.....	10¢

Hinges—

Blind and Shutter Hinges—	
Surface Gravity Locking Blind:	
(Victor): National; 1883 O. P.	
Niagara; Clark's O. P.; Clark's	
Tip; Buffalo.....	

No.....	1 1½ 5 5
Dos. pair.....	\$0.55 1.75 3.50

Wire Goods Co.:

Acme.....	104@105
Chief.....	104@105
Crown.....	70@105
Cash.....	65
V. Brace.....	70@105
Cash Hardware.....	50@105

Wrought Iron—

Box, 6 in., per doz.	\$1.00; 8 in., \$1.25;
10 in., \$2.50.	
Cotton.....	doz. \$1.05@1.25

Wrought Staples, Hooks, &c.—

See Wrought Goods.

Miscellaneous—

Hooks, Hens, See Stops. Bunch.	
Bush, Light, doz. \$4.75; Medium,	\$5.35; Heavy, \$6.25
Grass.....Nos. 1 2 3 4	
Best.....	\$1.50 1.75 2.00
Common.....	\$1.30 1.50 1.60 1.80
Potato and Manure.....	60@105
Wh. Metres.....	lb. 54@60

Hooks and Eyes:

Brass.....	60@105
Malleable Iron.....	70@105

Covert Mfg. Co. Gate and Scuttle Hooks:

Covert Saddlery Works Self Locking	
Gate and Door Hook.....	60@105

Ft. Madison Cut-Easy Corn Hooks:

doz. \$5.25 net	
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Bench Hooks—See Bench Stops.

Corn Hooks—See Knives, Corn.

Horse Nails—See Nails, Horse.

Horsehoes—See Shoes, Horse.

Hose Rubber—

Garden Hose, 1/2-inch:	
Competition.....	ft. 44@5 c

3-ply Standard.....	ft. 64@7 c
4-ply Standard.....	ft. 74@8 c

3-ply extra.....	ft. 84@9 c
4-ply extra.....	ft. 10 @10 1/2 c

Cotton Garden, 3/4-in., coupled:

Low Grade.....	ft. 6 @7 c
Fair quality.....	ft. 8 @9 c

Irons—Sad—

From 4 to 10.....	lb. 34@3 c
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B. B. Sad Irons.....

Chinese Laundry.....	lb. 34@3 c
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Chinese Sad.....

Mrs. Potts', cents per set:	
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Nos.....	60 55 60 65
Jap'drops 63	59 78 69
Tina'drops 65	62 76 72

New England Pressing, lb. 34@4 c

Pinking—

Soldering Irons.....	doz. 50@60 c
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Soldering Coppers 1/4 and 3/8, 19@20 c

1 1/2 and 2.....21@22 c

Jacks Wagon—

Covert Mfg. Co.:	
Auto Screw.....	30@55

Steel:

Covert's Saddlery Works:	60@105
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Victor.....

Lookport.....	50@105
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Lane's Steel.....

Richards' Tiger Steel, No. 130	40@105
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Kettles—

Brass, Spun, Plain.....	20@25 c
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Enameled and Cast Iron—See Ware, Hollow.

Knives—

Butcher, Kitchen, &c.—	
Foster Bros' Butcher, &c.....	30@105

Smith & Hemenway Co.....

Wilkinson Shear.....	40@105
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Corn—

Withington Acme, 1/2 doz., \$2.05; Dent,	\$2.75; Adj. Serrated, \$2.30; Serrated, \$2.10; Yankee No. 1, \$1.50;
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Yankee No. 3, \$1.15.

Drawing—

Standard List.....	70@105
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C. E. Jennings & Co. Nos. 45, 46.....

Jennings & Griffin, Nos. 4, 45.....	60@105
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Ohio Tool Co.'s.....

Swan's.....	70@105
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Watrous.....

L. & J. White.....	10@105
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Hay and Straw—

Iwan's Sickle Edge.....	40@105
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Iwan's Serrated.....

Buffalo.....	10@105
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Miscellaneous—

Farriers.....	doz. \$3.00@3.55
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Wootenholm's.....

Knobs.....	doz. \$3.00@3.25
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Base, 1/4-inch, Birch, or Maple,

Rubber tip, gro.....	\$1.10@1.15
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Carriage, Jap. all sizes.....

Door, Mineral.....	doz. 65@70 c
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Door, For Jap'd.....

Door, For Nickel.....	doz. 70@75 c
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Bardley's Wood Door, Shutter, &c.....

Picture, Sargent's.....	60@105
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Lacing Leather—

See Belting, Leather—	
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Ladders, Store &c.—

Lane's No. 1.....	25@105
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Myers Noiseless Store Ladders.....

Richards Mfg. Co.:	
Improved Noiseless No. 112.....	40@105

Climax Sh-lf, No. 118.....

Trolley, No. 100.....	40@105
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Ladies' Melting—

L. & W. Mfg. Co., Low List.....	25@105
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P. E. & W.....

Reading.....	60@105
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Sargent.....

Lanterns—Tubular	
Regular Tubular No. 9, doz. \$4.25@4.75	

Hinge Tubular, No. 0, doz. \$4.75@5.25

Other Styles.....	40@105
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Bull's Eye Police—

No. 1, 3/4 inch.....	\$2.50@2.75
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No. 2, 3 inch.....	\$2.75@3.00
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Lasts and Stands Shoe—

Stowell's Atlas, Malleable Iron.....	50@105
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Stowe's Badger, Cast Iron.....

Latches—Thumb—	
Roggin's Latches, with screw, dzs @100	

Door—

Richards' Bull Dog, Heavy, No. 125.....	40@105
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Richards' Trump, No. 127.....

Leaders Cattle—

Small.....	doz. 55@60 c
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Covert Mfg. Co.....

Lifters, Transom—	
R & E.....	33@105

Lines—

Wire Clothes, Nos. 15 19 30	
100 feet.....	\$2.50 3.00 1.65

175 feet.....

Samson Cordage Works:	
Solid Braided Chalk, No. 0 to 3.....	40@105

Silver Lake Braided Chalk, No. 0, \$6.00;

No. 1, \$6.50; No. 2, \$7.00; No. 3, \$7.50;	
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Mason's Lines, Shade Cord, &c.: White

Cotton, No. 3, \$1.50; No. 4, \$2.00; No.	
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4, \$2.50; Colors, No. 3, \$2.00; No. 4,

\$2.50; No. 4, \$2.75; Lines, No. 3, \$2.50;	
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No. 4, \$2.50; No. 4, \$2.50; No. 4, \$2.50;

Tent and Awning Lines, No. 5, White	
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Cotton, \$7.50; Drab Cotton, \$8.50; 300

Clothes Lines, White Cotton, 50 ft., \$2.75;	
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60 ft., \$3.25; 100 ft., \$5.75; 75 ft., \$4.00;

Anniston Waterproof Clothes, 50 ft., \$	
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\$24.00; Gilt Edge, \$22.00; Air Line

\$21.00; Acme, \$17.00; Alabama, \$15.00;	
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Empire, \$14.00; Advance, \$13.50; Ori-

ole, \$30.00; Albermarle, \$15.50; Eclipse,	
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\$12.50; Chicago, \$11.50; Standard,

\$10.00; Columbia, \$8.50; Allston, \$12.50;	
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Calhoun, \$11.00.

Locks—Cabinet—

Cabinet Locks.....	33@105
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Door Locks, Latches, &c.—

[Net prices are very often made on	
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Reading Hardware Co.....

R. & E. Mfg. Co.....	40@105
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Sargent & Co.....

Stowell's Steel Door Latches.....	50@105
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Elevator—

Stowell's.....	50@105
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Padlocks—

Wrought Iron.....	70@105
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R. & E. Mfg. Co. Wrt. Steel and brass.....

Sash, 3 c.—	
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Ives' Patent.....

Bronze and Brass.....	62@105
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Crescent.....

Iron.....	50@105
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Window Ventilating.....

Robison Patent Ventilating Sash	
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Lock.....

Wrought Bronze and Brass.....	55@105
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Wrought Steel.....

Pullman Patent Ventilating Lock.....	25@105
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Reading.....

Machines—Boring—	
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Com. Upright, Without Augers.....

Com. Angular, Without Augers.....	\$2.25
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R. & E. Mfg. Co.: Upright.....

Improved No. 3, \$4.25 No. 1 \$5.00;	
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Improved No. 4, 3.75 No. 2 3.38

Jennings' Nos. 1 and 2.....	35@105
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Millers' Falls.....

Buell's, Rice's.....	5.75 2.75
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Corking—

Reisinger Invincible Hand Power.....	\$40.00
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Fence—

Williams Fence Machines.....	each, \$5.50
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Hoisting—

Moore's Anti-Friction Differential Pul-	
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ley Block.....

Moore's Hand Hoist, with Lock Brake.....	30@105
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Ice Cutting—

Chandler's.....	12@105
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Washing—

Boss Washing Machine Co.: Per doz.	
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Champion Rotary Banner No. 1, \$54.00;

Standard Champion No. 1.....	\$48.00
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Standard Perfection.....

Clerk's Square Western.....	\$30.00
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Uneda American, Round.....

Mallets—	
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Bickory.....

Lignumvite.....	45@105
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Tinner's, Hickory and Appleswood,

doz.....	50@105
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Mangers, Stable—

Swett Iron Works.....	50@105
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Mashers, Vegetable—

Wentley, W. G. Co., Portland.....	60@105
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Mats—Door—

Elastic Steel (W. G. Co.).....	10@105
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Mattocks—

See Picks and Mattocks.	
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Milk Cans—See Cans, Milk

Mills—Coffee, etc.—	
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Kuterprize Mfg. Co.....

National List Jan. 1, 1901.....	30@105
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Parker's Columbia & Victoria.....

Parker's Box and Side.....	50@105
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Swirt, Lane Bros Co.....

Mowers, Lawn—	
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Net prices are generally quoted.

Cheap.....	all sizes, \$1.75@2.00
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Good.....

10 12 14 16-inch	
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High Grade 4.25 4.50 4.75 5.00

Continental.....	60@105
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Great American.....

Great American Ball Bearing, new list, 70	
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Pennsylvania, Jr. Ball Bearing.....

Pennsylvania Golf.....	50@105
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Pennsylvania Horse.....

Pennsylvania Pony.....	40@105
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Philadelphia.....

Styles M. S. C. K. T.....	70@105
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Style A, all Steel.....

Style R, High Wheel.....	70@105
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Drexel and Gold Coin, special list.....

Stanley's Duplex..... 20@20&10&10%
Woods' Extension..... 33&45
Poachers, Egg—
Buffalo Steam Egg Poachers, # doz.
No. 1, # doz. 3, # doz. 3,
#1.00; No. 4, #12.00..... 50&

Points, Glaziers—
Bulk and 1 lb. papers..... lb. 8 c
1/4-lb. papers..... lb. 9&c
1/2-lb. papers..... lb. 10&c

Pokes, Animal—
Ft. Madison Hawkeys..... # doz. \$3.25
Ft. Madison Western..... # doz. \$4.00

Police Goods—
Manufacturers' Lists..... 25@25&5%
Tower's..... 35&

Polish—Metal—
Prestoline Liquid, No. 1 (1/4 pt.), # doz.
\$3.00; No. 2 (1 qt.), \$9.75..... 40&
Prestoline Paste..... 40&10&

George William Hoffman
U. S. Metal Polish Paste, 3 oz. cans, # doz.
50& 50& # gr. \$4.50; 1/2 lb. boxes, # doz.
\$1.35; 1 lb. boxes, # doz. \$3.25.
U. S. Liquid, 8 oz. cans, # doz. \$1.25;
gr. \$1.00.

Barkeepers' Friend Metal Polish, # doz.
\$1.75; # gr. \$1.00.
Wynn's White Silk, 1/2 pt. cans, # doz.
\$2.00

Stove—
Black Eagle Benzine Paste, 5 lb. cans..... 10&

Black Eagle Liquid, 1/2 pt. cans # doz. 75&
Black Jack Paste, 1/2 lb. cans, # gr. \$9.00
Black Kid Paste, 1 lb. can..... each, \$0.60
Ladd's Black Beauty, # gr. \$10.00..... 50&
Joseph Dixon's, # gr. \$5.75..... 10&
Dixon's Plumbago..... # gr. \$2.50
Firestone..... # gr. \$2.50
Gem, # gr. \$4.50..... 10&
Japanese..... # gr. \$3.50
Jet Black..... # gr. \$3.50
Peerless Iron Enamel, 10 oz. cans, # doz. \$1.50

Wynn's
Black Silk, 5 lb. pail..... each 70&
Black Silk, 1/2 lb. box..... # doz. \$1.00
Black Silk, 5 oz. box..... # doz. \$0.75
Black Silk, 1/2 pt. liq..... # doz. \$1.00

Poppers, Corn—
1 qt., Square..... gro. \$9.00
1 qt., Round..... gro. \$10.00
1 1/2 qt., Square..... gro. 11.00
2 qt., Square..... gro. 15.00

Post Hole and Tree Augers and Diggers—
See also Diggers, Post Hole, &c.

Posts, Steel—
Steel Fence Posts, each, 5 ft., 42& 6
ft., 46& 6 1/2 ft., 48&
Steel Hitching Posts, each..... \$1.00

Potato Parers—
See Parers, Potato.

Pots—Glue—
Enameled..... 50&
Tinned..... 50&

Powder—
In Canisters:

Duck, 1 lb. each..... 45&
Fine Sporting, 1 lb. each..... 75&
Rifle, 1/2 lb. each..... 15&
Rifle, 1 lb. each..... 25&

King's Semi-Smokeless:
Keg (25 lb. bulk)..... \$6.50
Half Keg (12 1/2 lb. bulk)..... \$3.50
Quarter Keg (6 1/4 lb. bulk)..... \$1.90
Case 34 (1 lb. cans bulk)..... \$4.50
Half case (1 lb. cans bulk)..... \$4.50
King's Smokeless Shot Gun Rifle
Keg (25 lb. bulk)..... \$13.00 \$15.00
Half Keg (12 1/2 lb. bulk)..... 6.25 7.75
Quarter Keg (6 1/4 lb. bulk)..... 3.25 4.00
Case 34 (1 lb. cans bulk)..... 14.00 17.00
Half case 12 (1 lb. cans bulk)..... 7.75
Robin Hood Smokeless Shot Gun..... 50&20&

Presses—
Fruit and Jelly—

Enterprise Mfg. Co..... 20@25&
Seal Presses—
Morrell's No. 1, per doz. \$20.00..... 50&

Pruning Hooks and Shears—See Shears.

Pullers, Cork—
Invincible Cork Puller..... \$31.00

Pullers, Nail—
Cyclops..... 50&
Miller's Falls, No. 3, per doz. \$12.00..... 50&

Morrell's No. 1 Nail Puller, # doz. \$3.50
Pearson No. 1, Lycopine Spike Puller,
each \$30.00..... 50&
Pelican, # doz. \$9.00..... 40&10&
Beranton, Case Lots:
No. 2 B (large)..... \$5.50
No. 3 B (small)..... \$5.00
Smith & Hemenway Co.:
Diamond B, No. 2, ca-e lots, # doz. \$8.00
Diamond B, No. 2, case lots, # doz. \$5.50
Giant No. 1, # doz. \$18; No. 2, \$12.50
No. 3, \$15..... 40&

Pulleys—Single Wheel—
Inch..... 2 1/2 3
Avinger, # doz. \$9.55 85 1.15
Hay Fork, Squirrel or Solid Eye,
doz., 1 in. \$1.15; 2 in., \$1.40
Inch..... 2 1/2 3
Hot House, # doz. \$0.70 90 1.35
Inch..... 1 1/4 1 1/2 1 3/4 2
Screw, # doz. \$0.15 19 30 30
Inch..... 1 1/4 2 2 1/4 2 1/2
Side, # doz. \$0.30 40 55 65
Inch..... 1 1/4 1 1/2 2 2 1/2
Tackle, # doz. \$0.30 34 53 1.00

Stowell's:
Cellular or End, Anti-Friction..... 60&10&
Dumb Walter, Anti-Friction..... 60&10&
Electric Light..... 60&
Slide, Anti-Friction..... 60&10&

Sash Pulleys—
Common Frame; Square or Round
End, per doz., 1 1/4 and 2 in., 16@19c
Auger Mortise, no Face Plate, per
doz., 1 1/4 and 2 in., 16@19c

Auger Mortise, with Face Plate, per
doz., 1 1/4 and 2 in., 16@19c
Acme..... 13 1/2 in., 1 1/2 in., 1 1/2 in., 1 1/2 in.
Fox-All-Steel, Nos. 3 and 7, 2 in., # doz. 50&
Grand Rapids All Steel Noiseless..... 50&
Ideal..... 13 1/2 in., 1 1/2 in., 1 1/2 in., 1 1/2 in.
Niagara..... 13 1/2 in., 1 1/2 in., 1 1/2 in., 1 1/2 in.
No. 29, Troy..... 13 1/2 in., 1 1/2 in., 1 1/2 in., 1 1/2 in.
Star..... 13 1/2 in., 1 1/2 in., 1 1/2 in., 1 1/2 in.
Tackle Blocks—See Blocks.

Pumps—
Cistern..... 60@80&10&
Pitcher Spout..... 80@80&10&
Wool Unups Tubing, Etc..... 45@50&
Barnes Dbl. Acting (low list)..... 50&10&
Barnes' Pitcher Spout..... 80&
Contractors' Rubber Diaphragm No. 2
R. & L. Block Co..... \$1.00
Daisy Spray Pump..... # doz. \$7.30
Flint & Walling's, Fast Mail Hand..... 35&
Flint & Walling's Fast Mail (low list)..... 35&

Flint & Walling's Light Top Pitcher..... 80&
National Specialty Mfg. Co., Measur-
ing \$4.00..... 80&
Mechanical Sprayer..... \$7.30
Myers' Pumps, low list..... 50&
Myers' Power Pumps..... 50&
Myers' Spray Pumps..... 50&

Pump Leathers—
Plunger and Lower Valve—Per gro.:
Inch..... 2 1/4 3 1/4 3 1/4 3 1/4
\$2.20 2.50 2.75 3.00
Inch..... 3 3/4 3 1/2 3 1/2 3 1/2
\$3.30 3.60 3.85 4.10 4.50
Plunger Cup Leathers—Per 100:
Inch..... 2 1/4 3 1/4 3 1/4 3 1/4
\$2.75 3.85 5.00 6.00

Punches—
Saddlers' or Drive, good, # doz. 50@75c
Spring, single tube, good quality..... 1.75@3.00

Revolving (4 tubes)..... # doz. \$3.50@3.75
Bemis & Call Co.'s Cast Steel Drive..... 50&
Bemis & Call Co.'s Check..... 55&
Morrell's No. 1 (A. B. C.), # doz. \$15.00 20&
No. 2, # doz. \$22.50..... 40&
Hercules, each \$7.50..... 50&
Niagara Hollow Punches..... 40&
Niagara Solid Punches..... 55&10&
Steel Screw, B. & K. Mfg. Co..... 50&
Tinner's Hollow, P. S. & W. Co., # doz. \$5.55 5&
Tinner's Solid, P. S. & W. Co., # doz. \$4.44..... 60&

Rail—Barn Door, &c.—
Cast Iron, Barn Door; Flange Screw
Holes for Rd. Groove Wheels:
1/4 5/8 3/4 1 in.
\$1.70 \$2.10 \$3.00 100 feet.
Angular for Sq. Groove Wheels:
Small, Med., Large.....
\$1.50 1.90 2.60 100 feet.
Sliding Door, Iron Painted..... \$4&c
Sliding Door, Wrought Brass, 1 1/4
in..... lb. 35c..... 30&

Allith Mfg. Co.:
No. 1, Reliable Hanger Track, # ft. 51&
No. 2, Reliable Hanger Track, # ft. 71&
Cronk's:
Double Braced Steel Rail, # foot..... 3&
O. S. T. Rail..... 3&c
Griffin's:
xxx per 100 ft., 1 x 3-16 in., \$3.00; 1 1/4 x
3-16 in., \$3.50.
Hinged Hanger, per 100 ft. 1 x 3-16 in.,
\$3.10; 1 1/4 x 3-16 in., \$3.60.

Law's:
Hinged Track, # 100 ft., 1 in., \$3.70;
1 1/4 in. \$4.40
O. N. T., # 100 ft., 1 inch, \$2.75; 1 1/4
inch, \$3.50; 1 1/2 inch \$4.00.
Standard, 1 1/4 in., # 100 ft..... 4.00
Lawrence Bros.:
100 ft. No. 201, \$4.00; No. 202, \$4.40
New York, 1 x 3-16 in., # 100 ft. \$2.75

McKinney's:
Hinged Hanger Rail # foot, 1 1/2..... 3&
None Better..... # ft. 3&c
Standard..... # ft. 4 c
Myers' Stayon Track..... 60&
Richards Mfg. Co.:
Common 1 x 3-16, \$2.75; 1 1/4 x 3-16, \$3.25;
1 1/2 x 3-16, \$3.50
Special Hinged Hanger Rail..... \$4.40
Fire Door Track, # ft. 2 x 3/4 x 15&
3 1/2 x 3/4..... 9&
Lag Screw and Wall, No. 65..... 40&
No. 32, 15& No. 33, 24&

Safety Door Hanger Co.'s Storm King
Safety..... 60&
Safety Door Hanger Co.'s U.S. Standard..... 60&
Stowell's:
Cast Rail..... # ft. 13&
Steel Rail, Plain..... 25&
Wrought Bracket, 1 1/2-16 in..... # ft. 3&
Wrought Bracket, 1 1/2-16 in..... # ft. 7&
Sweet's Hylo, per ft. 1 1/2..... 60&
P. L. B. Steel Rail, # 100 ft..... \$3.00
No. 0, 1 x 3-16, # 100 ft..... \$2.75

Rakes—
Net Prices, Malleable Rakes:
10 12 14 16-tooth
Shank..... \$1.50 1.60 1.75 1.85
Socket..... \$1.65 1.80 1.95 2.10
Steel Garden and Gravel, Aug. 1,
'99 List..... 70&
Malleable Iron, Garden..... 70&10&
Lawn Rakes, Metal Head, per doz.
30 teeth..... \$3.25@3.50
2 1/2-ft. steel..... \$3.50@3.75
Weldless Steel Garden..... 75&5&
Fort Madison Red Head Lawn..... 85&
Fort Madison Blue Head Lawn..... \$2.70
Jackson Lawn, 20 and 30 teeth, # doz.,
net. \$4.25

Kohler's:
Lawn Queen, 30-tooth, # doz. \$5.45
Lawn Queen, 31-tooth, # doz. \$5.60
Paragon, 30 tooth, # doz. \$3.00
Paragon, 31-tooth, # doz. \$3.00
Steel Garden, 14-tooth, # doz. \$2.98
Malleable Garden, 14-tooth, # doz. \$1.75@2.00

Rasps, Horse—
Dillon's..... 75&
Heller Bros..... 70&30&10&5&
McCaffrey's American Standard..... 10&5&
New Nicholson..... 70&10&75&
See also Files.

Razors—
Boracic..... 60&
Fox Razors, No. 42..... # doz. \$20.00
Fox Razors, No. 44..... # doz. \$20.00
Fox Razors, No. 82, Platina, # doz. 25 00
Red Devil..... 60&
Silberstein..... \$18.00
Carbo Magnetic..... \$15.00
Griffon, No. 60..... \$12.00
Griffon, No. 90..... \$12.00
All other Razors..... 40&

Safety Razors—
Silberstein..... 40&

Reels—
Henry's:
M. Q. 6, A. B. 6, M. Q. 4, M. Q. 10, Q. 16,
A. 16, B. 16, 4008, Rubber Popul..... 20&
Ni-keel Popul..... 20&
Aluminum, German Silver, Bronze, 25&
1240 N. 124 N..... 20&
3001 N. 6 N, 6 RM, G. 9..... 25&
4 N, 6 FN, 24 N, 26 FN..... 20&
2004 P..... 33&45
0924 N..... 33&45
02084 N..... 33&45
020904 PN..... 33&45
802 N..... 33&45
956 PN, 2004 N, 974 PN..... 25&
5009 P, 5009 N..... 20&
Competitor, 102 P, 102 PN, 202 P,
304 P, 304 PN, 00304 P, 00304 PN, 33&45

Fishing—
Registers—List July 1, 1903.

Black Jap..... 08@09&10&
White Jap..... 08@09&10&
Bronzed..... 08@09&10&
Nickel Plated..... 08@09&10&
Electro Plated..... 08@09&10&

Revolvers—
Single Action..... 85@90c
Double Act, except 44 cal. \$1.90
Double Action, 44 caliber..... \$2.05
Automatic..... \$2.60
Hammerless..... \$4.10

Note.—Jobbers frequently cut the
above prices of manufacturers for
small trade.

Riddles, Hardware Grade
16 in., per doz..... \$2.50@3.50
17 in., per doz..... \$2.50@3.75
18 in., per doz..... \$2.75@3.00

Rings and Ringers—
Bull Rings—
Steel..... \$0.70 0.75 0.80 doz.
Copper..... 1.00 1.15 1.40 doz.
Rea's Improved Self-Piercing, Cop-
per, 2 in., # doz., \$1.25; 2 1/2 in., \$1.50
3 in., \$1.75.

Hog Rings and Ringers—
Hill's Rings..... gro. boxes, \$4.00@4.25
Hill's Ringers, Gray Iron, doz. 50@55c
Hill's Ringers, Mal. Iron, doz. 70@75c
Blair's Rings..... per gro. \$4.75@5.00
Blair's Ringers..... per doz. \$0.60@.65
Brown's Rings..... per gro. \$5.00@5.25
Brown's Ringers..... per doz. \$0.65@.70

Rivets and Burrs—
Copper..... 60&@60&10&
Iron or Steel..... 75&@75&10&

Rollers—
A. S. Stowell's Anti-Friction..... 50&
Barn Door, Sargent's list..... 75&
Cronk's Stay..... 75&
Cronk's Brinkerhoff..... 90&
Lane's Stay..... 40&
Richard's Stay:
Handy Adj. and Reversible No. 53..... 50&
O. E. Adj. and Reversible, No. 58..... 50&
Lag screw, Nos. 53 and 58..... 50&
Fire Door, No. 53..... 40&
Favorite, No. 54..... 40&
Stowell's Barn Door Stay..... # doz. \$1.00
Sweet's Anti-Friction..... 50&
Screw and Spike Stay..... # doz. 65&
Hinge Adjustable Stay..... # doz. 90&

Rope—
Manila, 7-16 in. diam. and
larger:
Mixed..... lb. 10 @11 c
Pure..... lb. 10 @11&c
Mantla, Hay, Hide and
Bale Ropes, Medium and
Coarse..... lb. 10 @11&c
Sisal, 7-16 in. diam. and larger:
Mixed..... lb. 7&c
Pure..... lb. 9 c
Sisal, Hay, Hide and
Bale Ropes, Medium
and Coarse:
Mixed..... lb. 7&c
Pure..... lb. 9 c
Sisal, Tarred, Medium
Lath Yarn:
Mixed..... lb. 7 c
Pure..... lb. 8&c
Cotton Rope..... (Lb.)
Best..... 1/4-in. and larger..... 15&c
Medium..... 1/4 in. and larger..... 15&c
Common, 1/4-in. and larger..... 10&c

Wire Rope—
Galvanized..... 47&45&
Plain..... 55&45&

Ropes, Hammocks—
Covert Mfg. Co.:
Jute..... 40&55&
Jute..... 40&
Covert Saddle Works..... 60&5&

Rules—
Bozwood..... 60&10&10&
Ivory..... 55&10&35&10&5&
Chapin-Stephens Co.:
Bozwood..... 60&10&10&
Ivory..... 55&10&10&10&
Miscellaneous..... 50&50&10&10&
Combination..... 55&55&10&
Stations..... 10&10&10&
Lufkin's Steel..... 50&10&
Lufkin's Lumber..... 70&

Stanley R. & L. Co.:
Boxwood..... 60&10&10&
Ivory..... 55&10&10&10&
Union Nut Co.:
Boxwood..... 60&10&10&
Ivory..... 55&10&10&10&

Sash Balances—See Balance
Sash.

Sash Locks—See Locks, Sash

Sash Weights—
See Weights, Sash.

Sausage Stuffers or Fillers
—See Stuffers or Fillers, Sausage.

Saw Frames—See Frames, Saw.

Saw Sets—See Sets, Saw.

Saw Tools—See Tools, Saw.

Saws—
Atkins:
Circular..... 50&
Band..... 50&10&60&
Cross Cut..... 35&5&
Mulay, Mill and Drag..... 50&
One-Man Saw..... 40&
Wood Saws..... 40&
Hand, compass, &c..... 40&
Chapin-Stephens Co.:
Turning Saws and Frames..... 30@30&10&
Diamond Saw & Stamping Works:
Sterling Kitchen Saws..... 30&10&5&

Diston's:
Circular, Solid and Inserted Tooth..... 50&
Band, 2 to 14 in wide..... 60&
Band, 1/4 to 1 1/4..... 60&
Crosscuts..... 50&
Narrow Crosscuts..... 50&
Mulay, Mill and Drag..... 50&
Framed Wood Saws..... 35&
Wood Saw Blades..... 35&
Wood Saw Blades..... 25&
Hand Saws, Nos. 12, 99, 9, 16, 4100,
Ds. 120, 75, 77, 8..... 25&
Hand Saws, Nos. 7, 107, 107 1/2, 1, 400,
Combination..... 30&
Compass, Keyhole, &c..... 35&
Butcher Saws and Blades..... 35&

C. E. Jennings & Co.'s:
Back Saws..... 25&
Butcher Saws..... 30&
Compass and Keyhole Saws..... 35&5&
Framed Wood Saws..... 30&
Hand Saws..... 30&2&5&
Wood Saw Blades..... 35&

Millers Falls:
Butcher Saws..... 35&10&
Star Saw Blades..... 10&10&
Peace & Richardson's Hand Saws..... 30&
Simonds:
Circular Saws..... 50&
Crescent Ground Cross Cut Saws..... 35&
One-Man Cross Cuts..... 40&10&
Gang Mill, Mulay and Drag Saws..... 50&
Band Saws..... 50&
Back Saws..... 25&25&7&5&
Butcher Saws..... 35&25&7&5&
Hand Saws..... 25&25&7&5&
Haw N Saws, Bay State Brand..... 45&
Compass, Keyhole, &c..... 25&
Wood Saws..... 35&25&7&5&
Springfield Mach. Screw Co.:
Diamond Kitchen Saws..... 40&10&50&
Butcher Saw Blades..... 35&40&
Wheeler, Madden & Clemons Mfg. Co.'s
Cross Cut Saw..... 50&

Hack Saws—
Atkins' Hack Saw Blades A A A..... 25&
Diston:
Concave Blades..... 25&
Keytone..... 40&
Hack Saw Frames..... 30&
Fitchburg File Works, The Best..... 25&
C. E. Jennings & Co.'s:
Hack Saw Frames, Nos. 175, 180..... 40&7&5&
Hack Saws, Nos. 175, 180, complete..... 40&7&5&

Goodell's Hack Saw Blades..... 40&
Griffin's Hack Saw Frames..... 35&5&10&
Griffin's Hack Saw Blades..... 35&5&10&
Springfield Mach. Screw Co.:
Diamond Hack Saw Blades..... 35&
Diamond Hack Saw Frames..... 35&10&
Sterling Hack Saw Blades..... 35&
Sterling Hack Saw Frames..... 30&4&5&

Scroll—
Barnes' No. 7, \$15..... 25&
Barnes' Scroll Saw Blades..... 40&
Barnes' Velocipede Power Scroll Saw,
without boring attachment, \$18;
with boring attachment, \$30..... 90&
Lester, complete, \$10.00..... 15&10&
Rogers, complete, \$4.00..... 15&10&

Scalers, Fish—
Covert's Saddle Works..... 60&10&

Scales—
Family, Turnbull's..... 60@50&10&
Counter:
Hatch, Platform, 1/2 oz to 1 lb. doz. \$5.50
Two Platform, 1/2 oz to 1 lb. doz. \$16
Union Platform, Plain..... \$1.70@1.90
Union Platform, Striped \$1.85@2.15
Chaffin's:
Eureka..... 25&
Favorite..... 40&
Grocers' Trip Scales..... 50&
Chicago Scale Co.:
The "Little Detective," 25 lbs..... 50&
Union or Family No. 3..... 60&
Portable Platform (reduced list)..... 50&
Wagon or Stock (reduced list)..... 50&
The Standard "R. R. and Wagon..... 50&

Scrapers—
Box, 1 Handle..... doz. \$2.00@2.25
Box, 2 Handle..... doz. \$2.60@2.85
Ship..... Light, \$2.00; Heavy, \$4.50
Adjustable Box Scraper (S. R. & L. Co.)
\$4.00..... 30&30&10&
Chapin-Stephens Co., Box..... 50&50&10&

Screens, Window, and
Frames—
Flyer Pattern Screens..... 60&5&60&5&91&
Maine Screen Frames..... 40&10&5&
Perfection Screens..... 60&5&60&5&21&
Phillips' Screen Frames, 60&5&60&5&21&
See also Doors.

Screws—Bench and Hand—

Bench, Iron, doz. 1 in. \$2.50 to \$2.75
 1 1/2, \$3.00 to \$3.25; 1 3/4, \$3.50 to \$3.75
 Bench, Wood, Beech, doz. 30 to 30 1/2
 Hand, Wood, 30 to 30 1/2
 R. Bliss Mfg. Co., Hand, 30 to 30 1/2
 Chapin-Stephens Co., Hand, 30 to 30 1/2
 Ohio Tool Co., Bench and Hand, 30 to 30 1/2
Coach, Lag and Hand Rail—
 Lag, Common Point, list Oct. 1, 99, 80 to 100
 Coach and Lag, Gimlet Point, list Oct. 1, 99, 75 to 100
 Hand Rail, list Jan. 1, '81, 70 to 100
Jack Screws—
 Standard List, 75 to 100
 Millers Falls, 50 to 100
 P. S. & W., 50 to 100
 Sargent, 70 to 100
 Swett Iron Works, 75 to 100

Machine—

List Jan. 1, '93,
 Flat or Round Head, Iron, 50 to 100
 Flat or Round Head, Brass, 50 to 100
Set and Cap—
 Set (Iron or Steel), 70 to 100
 Set, Hd. Cap, 70 to 100
 Hd. Cap, 70 to 100
 Rd. or Fillister Hd. Cap 65% given.

Wood—

List July 23, 1903,
 Manufacturers' printed discounts:
 Flat Head, Iron, 75 to 100
 Round Head, Iron, 75 to 100
 Flat Head, Brass, 75 to 100
 Round Head, Brass, 75 to 100
 Flat Head, Bronze, 75 to 100
 Round Head, Bronze, 75 to 100
 Drive Screws, 75 to 100

Scroll Saws—See Saws, Scroll.
Scythes— Per doz.
 Prices announced for next season:
 Clipper Pattern, Grass, \$6.50
 Full Polished, Clipper, \$6.75
 Grain, \$6.50
 Clipper, Grain, \$6.25
 Weed and Bush, \$6.25

Seeders—Raisin—
 Enterprise, 25 to 30
Sets—Awl and Tool—
 Brad Awl and Tool Sets:
 Wood Hd., 10 Awls doz. \$2.00 to \$2.25
 Wood Hd., 14 Awls, 6 Tools, doz. \$3.50 to \$2.00

Alken's Sets, Awl and Tools:
 No. 20, per doz. \$10.00 to \$10.10
 Fray's Adj. Tool Hds., No. 1, \$12; 2, \$13; 3, \$14; 4, \$15; 5, \$16
 C. E. Jennings & Co.'s Model Tool Holders, 80%
 Millers Falls Adj. Tool Hds., No. 1, \$12; No. 4, \$13; No. 5, \$14 to \$15 to \$16
 Stanley's Excelsior, No. 2 \$4.00; No. 3, \$5.50; No. 4, \$7.00; No. 5, \$8.50; No. 6, \$10.00; No. 7, \$11.50; No. 8, \$13.00; No. 9, \$14.50; No. 10, \$16.00

Garden Tool Sets—
 Ft. Madison, Three Piece S. Hoe, Rake and Shovel, per doz. sets, \$9.00
Nail—
 Square, per gro. \$2.25 to \$2.50
 Round, Blk. and Poi., assorted, per \$1.80 to \$2.00
 Octagon, per gro. \$1.50 to \$1.75
 Buck Brothers, 75%
 Cannon's Diamond Point, per gr. \$12.35
 Mayhew's, per gro. \$9.00
 Snell's Cannon's Diamond Pt. per gr. \$7.50
 Snell's Curved, Cup Pt. per gro. \$7.50
 Snell's Knurled, Cup Pt. per gro. \$7.50
 Springfield Mach. Screw Co., Diamond Knurled, Cup Pt., per gro. \$7.50

Rivet—
 Regular list, 75 to 75 1/2
Saw—
 Alken's, Genuine, 50 to 100
 Imitation, 50 to 100
 Criterion, 40 to 50
 Adjustable, 40 to 50
 Bemis & Call Co.'s, 30 to 40
 Cross Cut, 30 to 40
 Diction's Star and Monarch, 35 to 40
 Morrill's No. 1, \$15.00, 50%
 Nos. 3 and 4, Cross Cut, \$20.00, 50%
 No. 5, Mill, \$30.00, 50%
 No. 10, 11, 95, \$15.00, 50%
 No. 1 Old Style, \$10.00, 50%
 Special, \$16.25, 50%
 Giant Royal, Cross Cut, per doz. \$8.50
 Royal, Hand, per doz. \$8.50
 Talntor Positive, per doz. \$8.75

Shaving—
 Fox Shaving Sets, No. 30, per doz. \$24.00 net
Sharpening Knife—
 Chicago Wheel & Mfg. Co., 65%
Shaves, Spoke—
 Iron, doz. \$1.00 to \$1.15
 Wood, doz. \$1.75 to \$1.90
 Bailey's (Stanley R. & L. Co.), 30 to 40 to 100 to 105
 Chapin-Stephens Co., 30 to 40 to 100 to 105
 Goodell's, per doz. \$9.00, 15 to 100
 Wood's F1 and F2, 30 to 40 to 100 to 105

Shears—
 Cast Iron, 7 8 9 in.
 Best, \$16.00 18.00 20.00 gro.
 Good, \$13.00 15.00 17.00 gro.
 Cheap, \$5.00 6.00 7.00 gro.
 Straight Trimmers, etc.,
 Best quality, Jap., 70 to 100 to 105
 Fair qual. Jap., 60 to 80 to 105
 Tailors' Shears, 40 to 100 to 105
 Acme Cast Shears, 40 to 100 to 105
 Heinisch's Tailors' Shears, 1900 list 45%
 Wilkinson's Hedge, 1900 list 45%
 Wilkinson's Branch, Lawn and Border 45%
 Wilkinson's Sheep, 1900 list 50%

Tinners' Snips—
 Steel Blades, 30 to 40 to 100 to 105
 Steel Laid Blades, 40 to 100 to 105
 Forged Handles, Steel Blades, Berlin, 40 to 100 to 105

Heinisch's Snips, 40%
 Jennings & Griffin Mfg. Co.'s, 5% to 10 inch, 50%
 Niagara Snips, 40%
 P. S. & W. Co., 30%

Pruning Shears and Tools—
 Cronk's Grape Shears, 33 to 35%
 Cronk's Pruning Shears, 33 to 35%
 Diction's Combined Pruning Hook and Saw, per doz. \$18.00, 35%
 Diction's Pruning Hook, per doz. \$12.00, 25%
 John T. Henry Mfg. Co.,
 Pruning Shears, all grades, 40 to 40 1/2%
 Orange shears, 50 to 100 to 50 to 20%
 Grape, 40 to 100 to 50%
 Tree Pruners, 75%
 P. S. & W. Co., 35 to 40%

Sheaves—Sliding Door—
 Stowell's Anti-Friction, 50%
 Patent Roller Hatfield's, Sargent's list, 70 to 100
 Reading, 80%
 R. & E. list, 35 to 40%
 Wrightville Hatfield Pattern, 35 to 40%

Sliding Shutter—
 Reading list, 45 to 20%
 R. & E. list, 33 to 35%
 Sargent's list, 50 to 100%
Shells—Shells, Empty—
 Brass Shells, Empty:
 First quality, all gauges, 60 to 55%
 Climax, Club, Rival, 10 and 13 gauge, 65 to 55%
Paper Shells, Empty:
 Acme, Ideal, Leader, New Rapid, Magic 10, 13, 16 and 20 gauge, 25 to 55%
 Blue Rival, New Climax, Challenge, Monarch, Defiance, Repeater, Yellow Rival, 10, 12, 16 and 20 gauge, 30 to 35%
 Climax, Union, League, New Rival 10 and 13 gauge, 30 to 35%
 Climax, Union, League, New Rival 14, 16 and 20 gauge (\$7.50 list), 30%
 Expert, Metal Lined and Pigeon, 10, 12, 16 and 20 gauge, 33 to 45%
 Robin Hood, Low Brass, 30 to 10%
 Robin Hood, High Brass, 30 to 10%

Shells, Loaded—
 Loaded with Black Powder, 40%
 Loaded with Smokeless Powder, medium grade, 40 to 55%
 Loaded with Smokeless Powder, high grade, 40 to 100%
 Robin Hood Smokeless Powder, Robin Hood, Low Brass, 30%
 Comets, High Brass, 50 to 100 to 55%

Shoes, Horse, Mule, &c.—
 F. o. b., Pittsburgh:
 Iron, per keg \$4.00
 Steel, per keg 5.75
 Burden's, all sizes, per keg, \$9.30
Shot—
 Drop, up to B, 25-lb. bag, \$1.65
 Drop, B and larger, per 25-lb. bag, \$1.90
 Buck, 25-lb. bag, \$1.90
 Chilled, 25-lb. bag, \$1.90

Shovels and Spades—
 Association List, Nov. 15, 1903, 40%
Sieves and Sifters—
 Hunter's Imitation, gro. \$10.50 to \$11.00
 Buffalo Metallic, S. S. Co., per gr.: 14 to 16 18 to 20 20 to 25 25 to 30
 \$13.20 \$13.50 \$14.40
 Shaker Barbers' Pat. Flour Sifters, per doz. \$3.00, 90%
Sieves, Seamless Metallic—
 Per dozen
 Mesh, 14 16 18 20
 Iron Wire, \$1.05 1.05 1.10 1.20
 Tinned Wire, \$1.15 1.15 1.20 1.30

Sieves, Wooden Rim—
 Nested, 10, 11 and 12 inch
 Mesh 18, Nested, doz. \$0.90 to 0.95
 Mesh 20, Nested, doz. 1.00 to 1.05
 Mesh 24, Nested, doz. 1.50 to 1.60
Sinks—
 Cast Iron—
 Standard list, 60 to 60 1/2 to 10%
 Note.—There is not entire uniformity lists used by jobbers.
Skins Wagon—
 Cast Iron, 80 to 100 to 80 to 100 to 10%
 Steel, 40 to 100 to 10%
Slates, School—
 Factory Shipments.
 "D" Slates, 50 to 50 1/2 to 10%
 Eureka, Unexcelled Noiseless, 60 to 65
 Victor A, Noiseless, 60 to 65, 1/2 inch

Slaw Cutters—See Cutters.
Snaps, Harness—
 German, 40 to 40 1/2 to 10%
 Covert Mfg. Co., 30 to 55 to 35%
 High Grade, 45%
 Jockey, 30 to 10%
 Trojan, 45%
 Yankee, 45%
 Yankee, Roller, 30 to 55 to 35%
 Covert's Saddlery Works:
 Crown, 60%
 German, 60%
 Model, 60%
 Triumph, 60%
 Oneida Community, 60%
 Solid Swivel, 60%
 Sargent's Patent Guarded, 60 to 100 to 10%

Snaths—
 Scythe, 45 to 10%
Snips, Tinners—See Shears.
Spoons and Forks—
 Silver Plated—
 Good Quality, 50 to 100 to 60 to 10%
 Cheap, 70 to 100 to 10%

International Silver Co.
 1847 Rogers Bros. and Rogers & Hamilton, 40 to 100%
 Rogers & Bro., William Rogers Eagle Anchor, Rogers Brand, 40 to 100%
 Wm. Rogers & Son, 80 to 100%

Miscellaneous—
 German Silver, 60 to 60 1/2 to 5%
 Cattaraugus Cutlery Co., 50%
 Seneca Silver, 50%

Tinned Iron—
 Teas, per gro. 45 to 50%
 Tables, per gro. 90 to \$1.00

Springs—Door—
 Chicago (Coll), 40 to 100%
 Gem (Coll), 20%
 Pullman (Coll), 30%
 Reliance (Coll), 40 to 100%
 Star (Coll), 30%
 Tarrant's Rod, 30 in., per doz. \$1.10
 Victor (Coll), 50 to 100 to 10%

Carriage, Wagon, &c.
 14 in. and Wider: Per Lb.
 Black, 1/4 c
 Half Bright, 1/4 c
 Bright, 1/4 c
 Painted Seat Springs:
 1 1/2 x 2 x 26, per pr., 45 c
 1 1/2 x 3 x 28, per pr., 70 c

Sprinklers, Lawn—
 Enterprise, 25 to 30%
 Philadelphia No. 1, per doz. No. 2, \$15; No. 3, \$24
Squares—
 Nickel plated, Last Jan. 5, 1900,
 Steel and Iron, 70 to 100 to 75 to 10%
 Rosewood Hdl. Try Square and T-Bevels, 60 to 100 to 100 to 70%
 Iron Hdl. Try Squares and T-Bevels, 40 to 100 to 100 to 10%
 Diction's Try Sq. and T-Bevels, 70%
 Winterbottom's Try and Miter, 40 to 100 to 40 to 100 to 10%

Squeezers—Lemon—
 Wood, Common, gro. No. 0, \$5.25 to \$5.80; No. 1, \$5.25 to \$6.50
 Wash, Porcelain Lined, 40%
 Cheap, per doz. \$1.00
 Good Grade, per doz. \$1.25
 Tinned Iron, per doz. \$0.75 to \$1.25
 Iron, Porcelain Lined, per doz. \$1.75

Staples—
 Barbed Blind, lb. 60 to 65%
 Electricians' Association list, 80 to 100 to 100 to 10%
 Fence Staples, Plain \$2.25; Galvanized, \$2.55
 Poultry Netting, Staples, per lb., \$1.40 to \$1.45
 Grand Crossing Tack Co.'s list, 80 to 100%

Steels, Butchers—
 Dietz's, 30%
 Foster Bros', 30%
 C. & A. Hoffmann's, 40%
Steelyards—
 30 to 30 1/2 to 10%
Stocks and Dies—
 Blacksmiths, 50 to 50 1/2 to 10%
 Curtis Reversible Ratchet Die Stock, 25%
 Derby Screw Plates, 25%
 Gardner Die Stocks No. 1, 50%
 Gardner Die Stocks, larger sizes, 40%
 Green River, 25%
 Lightning Screw Plate, 25%
 Little Giant, 25%
 Reece's New Screw Plates, 25%

Stone—
Scythe Stones—
 Chicago Wheel & Mfg. Co.:
 Gem Corundum, 10 inch, \$3.00 per gro., 12 inch, \$4.80
 Norton Emery Scythe Stones:
 Less than gro. lots, per gro. \$9.00
 One gross or more, per gro. \$7.30
 Lots of 10 gross or more, per gro. \$6.00
 Pike Mfg. Co. 1901 list:
 Black Diamond S. S., per gro. \$12.00
 Lamolite S. S., per gro. \$11.00
 White Mountain S. S., per gro. \$9.00
 Green Valley S. S., per gro. \$6.00
 Arkansas Slip N. S., per gro. \$7.50
 No. 1 Indian Ford S. S., per gro. \$7.00
 No. 2 Indian Ford S. S., per gro. \$4.50
 Leader Red End S. S., per gro. \$4.50
 Emery and 1 Corundum, 10 inch, per gro. \$9.00
 Pure Corundum, 10 inch, per gro. \$12.00
 Crescent, per gro. \$7.00
 Emery Scythe Rifles, Two Coats, \$8
 Emery Scythe Rifles, Three Coats, \$10
 Emery Scythe Rifles, Four Coats, \$12
 Balance of 1904 list 39 to 45%

Oil Stones, &c.
 Chicago Wheel & Mfg. Co., 1901 list:
 Gem Corundum Oil, Double Grit, 50%
 Gem Corundum Axi, Single or Double Grit, 55%
 Gem Corundum Slips, 55%
 Gem Corundum Razor Hones, 50%
 Pike Mfg. Co. 1901 list:
 Arkansas Stone, No. 1, 3 to 5 in. \$2.50
 Arkansas Stone, No. 1, 5 to 10 in. \$3.50
 Arkansas Slip N. S., 1 in. \$4.00
 Lily White Washita 4 to 8 in. \$6.00
 Royal Red Washita 4 to 8 in. \$6.00
 Washita Stone, Extra, 4 to 8 in. \$5.00
 Washita Stone, No. 1, 4 to 8 in. \$4.00
 Washita Stone, No. 2, 4 to 8 in. \$3.00
 Washita Stone, No. 3, 4 to 8 in. \$2.00
 Royal Red Slips, 90%
 Washita Slips, Extra, 80%
 Washita Slips, No. 1, 70%
 Washita Slip, No. 2, 60%
 India Oil Stones (entire list), 39 to 45%
 Quickcut Emery and Corundum Oil Stone, Double Grit, 39 to 45%
 Quickcut Emery and Corundum Axi Stone, Single or Double Grit, 39 to 45%
 Quickcut Emery Rubbing Bar, 39 to 45%

Stones—
 Hindostan No. 1, Regular, per doz. \$10.00
 Hindostan No. 1 Small, per doz. \$10.00
 Axe Stones (all kinds), per doz. \$10.00
 Turkey Oil Stones, ex. 5 to 8 in. per doz. \$10.00
 Queer Creek Stones, 4 to 8 in. per doz. \$10.00
 Queer Creek Slips, 4 to 8 in. per doz. \$10.00
 Sand Stone, 80 to 100%
 Belgian, German and Swaty Razor Hones, 50%
 Natural Grit Carving Knife Hones, per doz. \$3.00
 Quick Edge Pocket Knife Hones, per doz. \$2.50
 Mounted Kitchen Sand Stone, per doz. \$1.50

Stoners—Cherry—
 Enterprise, 25 to 30%
Stoppers, Bottle—
 Victor Bottle Stoppers, per gro. \$9.00
Stops, Bench—
 Millers Falls, 15 to 10%
 Morrill's, per doz. No. 1, \$10.00, 50%
 Morrill's, No. 2, \$12.50, 50%
Door—
 Chapin-Stephens Co., 50 to 80 to 100%

Plane—
 Chapin-Stephens Co., 30%
Straps—Box—
 Cary's Universal, case lots, 20 to 10 to 10%
Hame—
 Covert's Saddlery Works, 60 to 10%

Stretchers, Carpet—
 Cast Iron, Steel Points, doz. 55 to 60%
 Socket, doz. \$1.75
 Excelsior Stretcher and Tack Hammer, Combined, per doz. \$6.00, 30%
Stuffers, Sausage—
 Enterprise Mfg. Co., 25 to 35 to 74%
 National Specialty Mfg. Co., list Jan. 1, 1902, 30 to 45%
Sweepers, Carpet—
 National Sweeper Co.:
 Auditorium, Roller Bearing (30 in. case), Nickel, \$54.00
 Mammoth, Roller Bearing (30 in. case), Nickel, \$60.00
 Marion, Roller Bearing, regular finishes, full Nickel, \$24.00
 Marion Queen, Roller Bearing, full Nickel, \$24.00
 Monarch, Roller Bearing, Nickel, \$22.00
 Monarch, Roller Bearing, Jap. Nickel, \$21.00
 Transparent, Roller Bearing, Plate Glass Top, Nickel, \$36.00
 Monarch Extra, Roller Bearing, (17-inch case), Nickel, \$36.00
 Monarch Extra, Roller Bearing (15-inch case), Japanned, \$38.00
 National Queen, Fancy Veneers, \$27.00
 Perpetual, Regular Bearings, Nkl, \$20.00
 Perpetual, Regular Bearings, Jap. \$18.00
 Note.—Rebates: 30c per dozen on three dozen lots; \$1 per dozen on five dozen lots; \$2 per dozen on ten dozen lots; \$2.50 per dozen on twenty-five dozen lots.

Tacks, Brads, &c.—
 Last Jan. 15, '99,
 Carpet Tacks, 90 to 50 to 100 to 5%
 American Cut Tacks, 90 to 50 to 5%
 Suedes Cut Tacks, 90 to 50 to 100 to 5%
 Suedes Upholsterers' Tacks, 90 to 50 to 100 to 5%
 Gimp Tacks, 90 to 50 to 100 to 5%
 Lime Tacks, 90 to 50 to 100 to 5%
 Trimmers' Tacks, 90 to 50 to 100 to 5%
 Looking Glass Tacks, 90 to 50 to 100 to 5%
 Bill Posters' and Railroad Tacks, 90 to 50 to 100 to 5%
 Hungarian Nails, 90 to 50 to 100 to 5%
 Common and Patent Brads, 90 to 50 to 100 to 5%
 Trunk and Clout Nails, 90 to 50 to 100 to 5%
 Note.—The above prices are for straight weights. An extra 5% is given Star Weights and an extra 10% on Standard Weights.

Miscellaneous—
 Double Pointed Tacks, 90 to 50 to 100 to 5%
 Steel Wire Brads, R. & E. Mfg. Co.'s list, 50 to 100 to 5%
See also Nails, Wire.
Tanks, Oil—
 Each.
 Emerald, S. S. & Co., 30-gal. \$3.40
 Queen City S. S. & Co., 60-gal. \$4.25
 Queen City S. S. & Co., 80-gal. \$4.65
 Queen City S. S. & Co., 100-gal. \$4.95
Tapes, Measuring—
 American Asses' Skin, 40 to 100 to 50%
 Patent Leather, 25 to 30 to 5%
 Steel, 40 to 100 to 10%
 Chesterman's, 35 to 25 to 5%
 Faddy Asses' Skin, 40 to 100 to 5%
 Eddy Patent Leather, 25 to 30 to 5%
 Eddy Steel, 40 to 100 to 10%
 Koutell & Easer Co. Steel and Metallic, Lower list, 1903, 35%
 Lufkin's Steel, 39 to 45 to 5%
 Lufkin's Metallic, 30 to 30 to 5%

Teeth, Harrow—
 Steel Harrow Teeth, plain or headed, 1/4-inch and larger, per 100 lbs., \$5.00
Thermometers—
 Tin Case, 80 to 100 to 80 to 10 to 5%
Ties, Bale—Steel Wire,
 Single Loop, 80 to 25 to 4%
 Monitor, Cross Head, Etc., 70%
Brick Ties—
 Niagara Brick Ties, 35 to 10%
Tinners' Shears, &c.—
 See Shears, Tinners', &c.
Tinware—
 Stamped, Japanned and Piced, sold very generally at net prices.
Tips, Safety Pole—
 Covert's Saddlery Works, 60 to 10%
Tire Benders, Upsetters, &c.—See Benders and Upsetters, Tire.

